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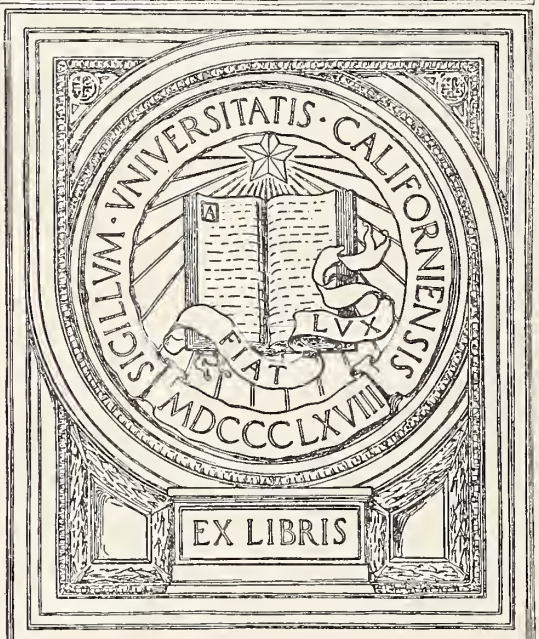

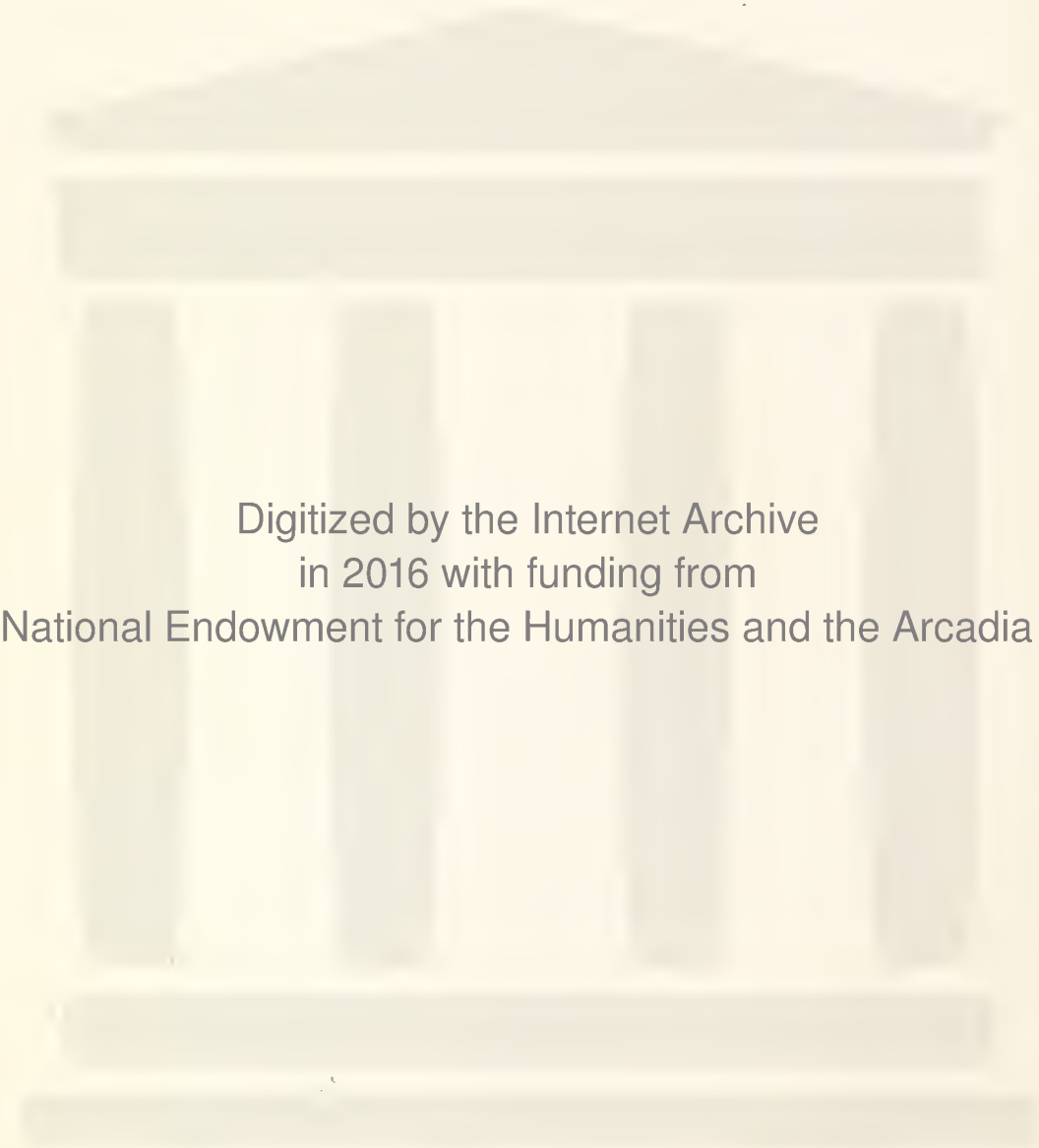

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JOURNAL of The IOWA MEDICAL SOCIETY

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References: (1) Malone, F. J., Jr.: *Mil. Med.* **125**:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* **34**:187, 1959. (3) Ullman, A.: *Delaware M. J.* **32**:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* **108**:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* **10**: 694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* **11**:392, 1960.

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Scientific Articles

Fractures About the Elbow In Children

PATRICK J. KELLY, M.D.
Rochester, Minnesota

THERE HAS BEEN enough clinical research on the subject of fractures of the elbow region in children to allow the presentation of the following material.[1-4] I approach this subject with humility, bearing in mind that others have trod this path before. Basically, I agree with the approach that authorities have made to these injuries, but I shall present, in a rather dogmatic fashion, the methods that have worked for me. In doing so, I don't mean to imply that I think there can be no variations in approach. Rather, I wish merely to simplify the material available.

CLASSIFICATION

Both Blount[1] and Fahey[4] have reviewed large series of fractures of the elbow in children. I have drawn from those sources for a classification (Table 1). Their percentage distributions of these fractures by type are very similar.

ROENTGENOGRAMS IN DIAGNOSIS

With a classification firmly in hand, one can proceed to roentgenographic interpretation. Roentgenograms of the elbow can be difficult to interpret. Often the child's resistance to examination prevents one from obtaining true anteroposterior views. Sometimes worthwhile roentgenograms can be obtained only after induction of anesthesia. Knowledge of the appearance of epiphyseal centers for growth and of closure of epiphyseal lines is important. However, such data aren't always available from memory. A practical source of such knowledge in a given case is a roentgenogram of the uninjured elbow.

For reasons of practicality, it is best to consider the supracondylar and the transcondylar fractures simply as supracondylar fractures. Separation of these into different groups is artificial.

ASSESSMENT OF NERVE AND VASCULAR STATUS

On the patient's arrival for treatment, the vascular and nerve functions in the injured extremity must be assessed. It goes without saying, of course, that the child's general health, the possibility that there have been accompanying injuries, and a history of recent food intake must be evaluated.

TABLE 1

CLASSIFICATION OF FRACTURES OF THE ELBOW

Type	Per Cent
Supracondylar fracture (transcondylar)	60
A. Extension type—distal fragment displaced posteriorly (Figure 1)	
B. Reverse or flexion type—distal fragment displaced anteriorly (rare, less than one per cent of all supracondylar fractures) (Figure 2)	
Fracture of lateral condyle of humerus (Figure 3)	18
Fracture of medial epicondyle of humerus (Figure 4) —more than 50 per cent associated with dislocation of the elbow	8
Fracture of radial neck (Figure 5)	4
Dislocation of the elbow without fracture	6
Olecranon fracture, Monteggia fractures and rarer combinations (Figures 5, 6 and 7)	4
	100

Dr. Kelly, of the Section of Orthopedic Surgery at the Mayo Clinic and Mayo Foundation, read this paper at the postgraduate conference of the Iowa Chapter, American Academy of General Practice, at Lake Okoboji, June 22-24, 1961.

Nerve Injuries. The median, ulnar and radial nerves all pass the elbow joint on their way to the hand. It therefore isn't surprising that all injuries of the elbow can be accompanied by injuries to those nerves.

Watson-Jones[5] states that 15 per cent of supracondylar fractures are associated with injury to the median or the ulnar nerve. In our experience at the Mayo Clinic, the radial nerve has more commonly been injured. In a Mayo Clinic series of 108 supracondylar fractures reviewed by Lipscomb and Burleson,[3] the radial nerve had been injured in 11 instances, the median in seven and the ulnar in three. The lateral condylar fracture isn't accompanied by initial nerve injury, but if it is improperly treated and the condyle fails to unite, a cubitus valgus results, and there is delayed injury of the ulnar nerve years later. The uncommon reverse or flexion supracondylar fracture is accompanied by ulnar-nerve injury in a high percentage of cases. Fracture of the medial epicondyle may be associated with injuries of the ulnar nerve. In fracture of the radial neck or in Monteggia fracture with posterior displacement of the radial head, injury to the posterior interosseous branch of the radial nerve may occur.

As a rule, these are contusions or traction injuries of the nerves. Continuity of the nerves isn't interrupted. For this reason, the nerve injuries are temporary and clear up in a matter of weeks. Therefore, except for certain injuries of the ulnar nerve associated with dislocation of the elbow and fracture of the medial epicondyle, exploration of the nerve is not justified primarily.

Vascular Injuries. Arterial injury in fracture of the elbow, particularly in supracondylar fracture, is especially troublesome. In Lipscomb and Burleson's series,[3] 22 per cent of 108 supracondylar fractures were associated with either vascular or neural complications.

Vascular injury is most likely in supracondylar fracture or, as its clinical manifestation is more commonly called, in Volkmann's ischemic contracture. Probably the fracture itself causes laceration, contusion with spasm, or thrombosis of the brachial artery. Certainly tight bandages, faulty casts and repeated manipulations may tip the scales in a situation where the circulation has been compromised. The point is that vascular injury as well as neural injury is best diagnosed before treatment is started.

The classic signs of vascular injury are pain, paralysis and pallor. Absence of the radial pulse *per se* isn't a sign of vascular injury if color and temperature of the fingers are normal. Nonetheless, absence of the radial pulse should alert one to the necessity of giving careful scrutiny to the situation. Signs of arterial injury may not all be immediately evident. For this reason, careful observation following manipulation is important. Also, if the child has excessive pain after a proper reduction, one must strongly consider the possibility of impending Volkmann's ischemic contracture.

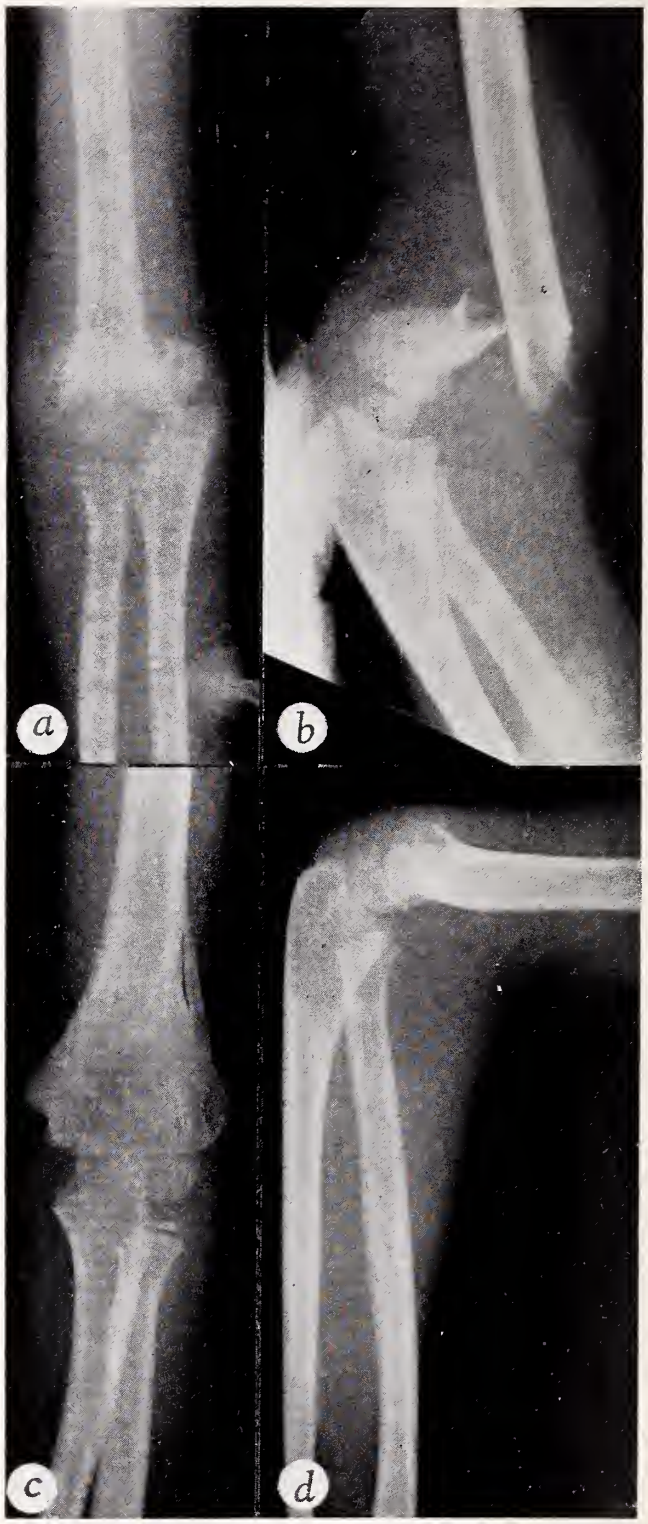

Figure 1. Views a and b show a markedly displaced extension-type supracondylar fracture. The distal fragment is displaced posteriorly. Views c and d show the elbow two years later. The fracture has healed with no deformity.

After proper roentgenographic evaluation and proper assessment of nerve and vascular continuity, one can proceed with treatment. The child's general condition must be such as to permit general anesthesia, if treatment is to be given.

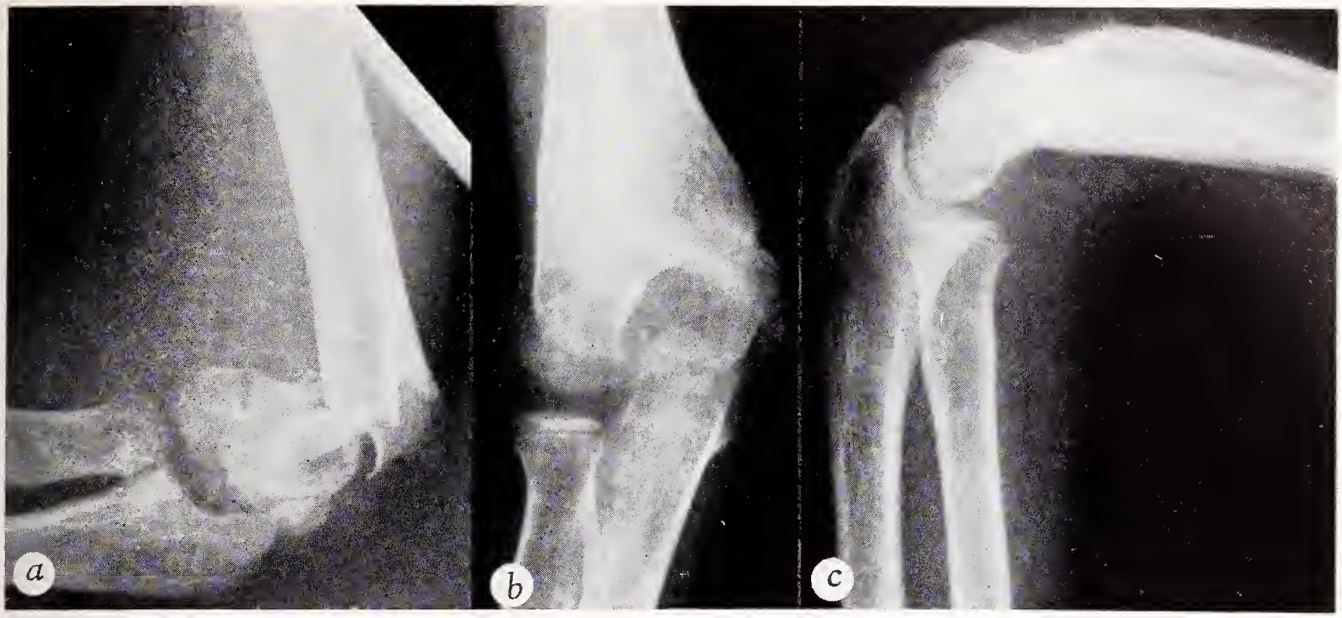

Figure 2. Picture a shows a rare flexion type or reverse supracondylar fracture. The distal fragment is displaced anteriorly. Pictures b and c were taken seven months later. Healing is evident, alignment is acceptable and function is good.

If general anesthesia is contraindicated, reduction can be delayed, provided that nerve or vascular injury is not present. However, axillary brachial block can be used. In fact, it is used routinely for all such fractures by some.[6]

REDUCTION OF SUPRACONDYLAR (TRANSCONDYLAR) FRACTURES OF THE EXTENSION TYPE (FIGURE 1)

Gentle, steady traction on the supinated hand is maintained for five minutes. The thumb of the other hand palpates the distal portion of the proximal fragment and disengages the fracture. Varying supination will correct the rotation. Lateral displacement is corrected by molding the fracture with the palms of the hands before flexing the elbow. After the correction of rotation and lateral displacement, the elbow is flexed to 45 degrees with the forearm pronated. The radial pulse should be checked, and if it is palpable, then a posterior padded plaster splint is applied to maintain position. One avoids the use of an encircling bandage at the elbow.

If the radial pulse disappears upon flexion to 45 degrees, one is justified in observing the patient for a short period (20 to 30 minutes), since pulsation often returns. If there is any sign of ischemia, however, such as pallor or cyanosis of the fingers, or poor return of color on blanching of the nailbeds, then the elbow is released and brought back to a position that permits the radial pulse to return. In my experience, if the elbow cannot be maintained at 45 degrees of flexion, a reduction will not be maintained. If there is any question regarding the adequacy of the circulation, one is well advised to resort to one of the methods of lateral traction. Certainly the simplest is Dunlop traction.

Dunlop traction[1] is used as follows. Moleskin traction tapes are applied to the forearm, with the patient supine and the elbow at 120 degrees. Countertraction is applied by means of a wide sling of felt placed on the distal part of the arm. Care must be used not to apply excessive weight, for this can be injurious to the circulation. Often traction accomplishes the reduction, and it can be helped, if necessary, by gentle manipulation at the bedside.

The patient can be left in traction for three weeks, and then the arm may be placed in a sling, or after the danger of vascular insufficiency has passed, the elbow may be brought to flexion and immobilized as described above.

MANAGEMENT OF SUPRACONDYLAR FRACTURE WITH VASCULAR INJURY

Vascular injury (Volkmann's ischemic contracture) may be apparent before, at the time of, or after reduction. The signs of impending Volkmann's contracture have been described above. Institution of Dunlop traction is the first step. A sympathetic nerve block may be tried. If immediate results aren't obtained, then the cubital fossa is explored at once. A delay of three or four hours can be disastrous.

Resection of the torn, thrombosed or spastic segment of brachial artery allows the abundant collateral circulation to be released from spasm.[3] Lipscomb has said that it is much better to err on the side of exploring the cubital fossa and finding a normal brachial artery, than to hope that the situation will improve with watchful waiting.

Care of the fracture is secondary. However, one can either reduce the fracture at the time of exploration and hold it in reduction with crossed Kirschner wires, or use Dunlop traction to maintain reduction.

SUPRACONDYLAR FRACTURE OF THE FLEXION OR REVERSE TYPE (FIGURE 2)

Supracondylar fracture of the flexion or reverse type is rare. Since the distal fragment is anterior, or flexed on the proximal fragment (Figure 2a), reduction is obtained by extension. Immobilization of the fracture in extension usually allows an acceptable reduction. It is probably safest after three weeks to bring the elbow to a right-angle position. I have seen one case in which immobilization in full extension resulted in considerable permanent loss of flexion of the elbow.

FRACTURE OF THE LATERAL CONDYLE (FIGURE 3)

Fracture of the lateral condyle with displacement almost invariably requires operative treatment. In some instances the fragment may be undisplaced or only minimally displaced, and can be treated by manipulation and plaster immobilization, with the elbow at a right angle (90 degrees) and with the forearm pronated. As Fahey[4] has pointed out, if this course is followed, roentgenograms must be taken twice during the first 10-day period following injury to make sure the fragment doesn't become displaced. Certainly in all fractures with displacement, open reduction through a lateral incision is necessary, with maintenance of reduction by means of threaded Kirschner wires (Figure 3b). Faulty reduction leads to nonunion, with resultant exaggerated carrying angle, and in later years leads to a tardy ulnar palsy due to the stretch placed on the ulnar nerve by the abnormal position of the elbow.

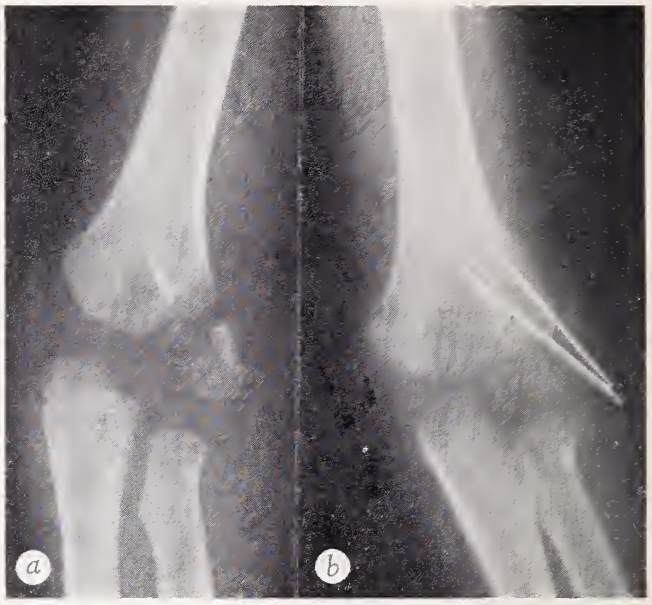

Figure 3. View a shows a typical fracture of the lateral condyle, with marked rotation and displacement. View b shows the fracture reduced and held with Kirschner wires. (Kirschner wires are cut off so that they lie subcutaneously.)

FRACTURE OF THE MEDIAL EPICONDYLE (FIGURE 4)

In Fahey's experience, fracture of the medial epicondyle has been complicated by dislocation of the elbow in more than half the cases. The consensus is that if the epicondylar fragment is incarcerated in the joint, or if signs of ulnar-nerve irritation are present, it is best to explore the fracture. The rationale of this approach is that one had better remove the epicondylar fragment from

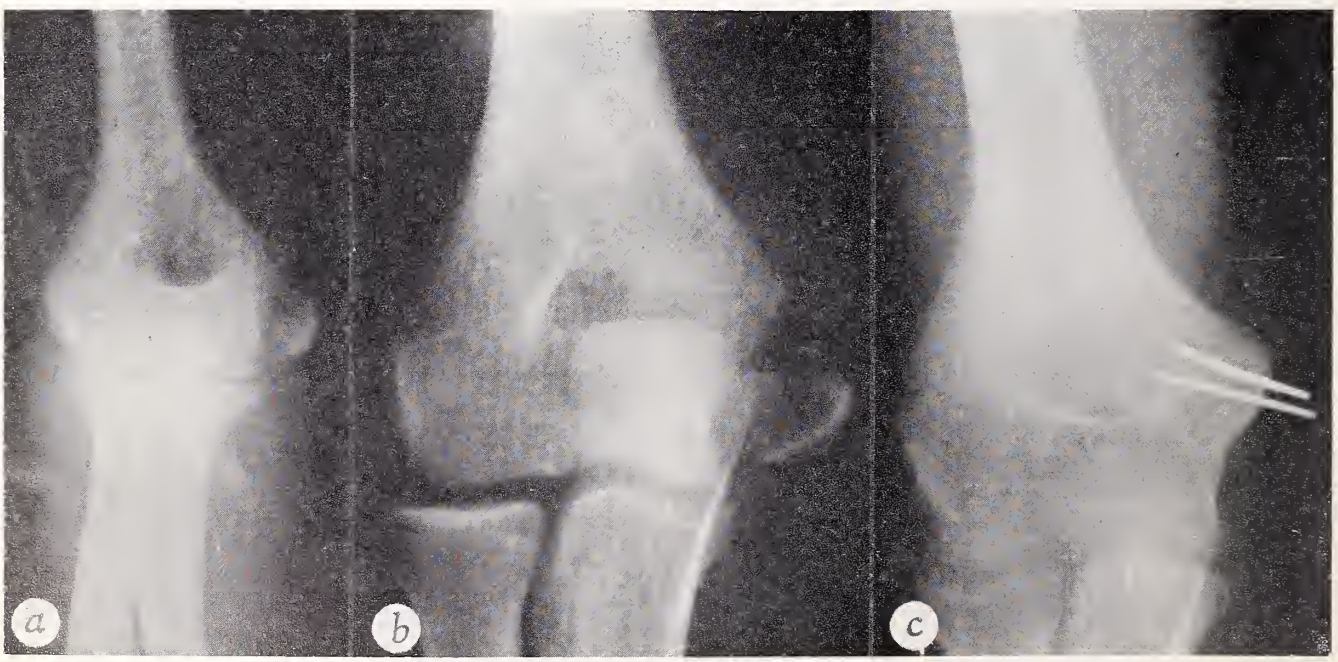

Figure 4. View a shows fracture of medial epicondyle with only slight displacement. This often can be treated by immobilization in flexion. Union may be only by fibrous tissue. View b shows a fracture of the medial epicondyle with displacement. Ulnar-nerve symptoms were present. Clinical examination indicated spontaneous reduction of the dislocation. View c shows the medial epicondyle replaced and fixed. The ulnar nerve was inspected to make sure it had not been caught in the joint.

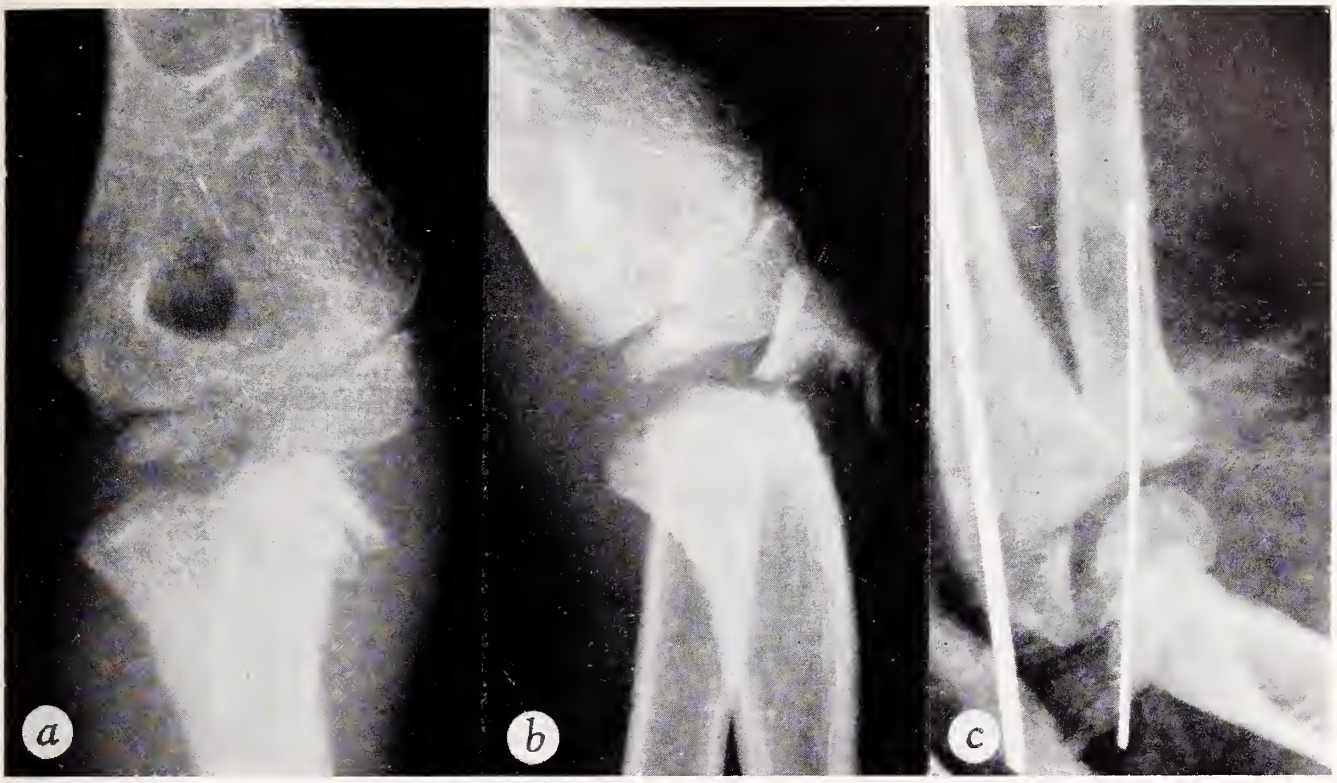

Figure 5. Pictures a and b show a fracture of the radial neck, with an associated fracture of the olecranon. With this degree of radial-head tilt and no improvement on closed manipulation, it is best to reduce the fracture by open surgical methods. In picture c, the fracture of the radial neck and the olecranon fracture have been reduced and are held by Kirschner wires. It was thought best to use internal fixation because of the instability of these fractures.

the joint under direct vision than try to do it by manipulation. Also, in a few cases, the ulnar nerve has been pulled into the joint with the fragment of bone, and gentle removal under direct vision is best. This situation probably represents one of the exceptions to the usual rule that nerve injury need not be explored primarily in fracture of the elbow. If the epicondyle is only minimally displaced, immobilization in flexion for three weeks is all that is necessary (Figure 4a). Healing of the fragment may be by fibrous union rather than by bony union, but the result isn't hindered. Blount[1] has said that if the epicondyle is moderately displaced, even without ulnar-nerve signs or incarceration in the joint, it is best to replace it in the fractured bed and hold it with Kirschner wires (Figure 4b). Often the dislocation is temporary and reduces itself spontaneously. Consequently, the actual joint injury is more serious than it appears, and it is wise to warn the child's family that joint motion will return slowly and that sometimes permanent limitation of motion may result.

FRACTURE OF THE NECK OF THE RADIUS

In contrast to the adult, the child fractures the neck and not the head of the radius. Also, in further contrast, fracture of the radial neck in a child must never be treated by excision of the radial head. The consequences of such an act are radial shortening, clubhand and a permanently weak elbow. Some such cases can be treated by closed manipulation with firm pressure on the radial head and with the elbow extended and abducted. Blount[1] has said that in the young child, angulation of less than 45 degrees can be accepted without resort to open operation. Fahey[4] has observed that angulation of more than 25 degrees which cannot be improved by manipulation should be reduced under direct vision. Usually the choice is not that critical, and in my experience the angulation usually corrects to an acceptable 25 or 30 degrees, or the fragment is so severely angulated or completely displaced that reduction under direct vision is necessary (Figure 5a). Fixation with Kirschner wires is generally unnecessary unless there is some instability such as may occur if there is an associated fracture of the ulna (Figure 5b.)

MISCELLANEOUS FRACTURES OF THE ELBOW

Fracture of the olecranon process as a single injury isn't common. It responds well to closed reduction in an extended position. Association of olecranon fracture with fracture of the radial neck occurs more often, and may well require open reduction if the fracture of the radial neck demands it (Figure 5). Monteggia fractures in children are usually amenable to closed reduction, and in that respect are very different from such fractures in adults (Figure 6). In some instances, if a severely displaced fracture of the radial neck is seen,

Figure 6. Monteggia fracture with posterior displacement of the radial head and fracture of the ulna. This fracture was reduced by closed manipulation alone. Pictures a and b were taken prior to reduction. Picture c was taken six weeks after reduction.

rather than dislocation of the radial head, one may have to resort to open surgical methods (Figure 7).

DISLOCATION OF THE ELBOW

Dislocation of the elbow isn't a common injury in children. Fahey[4] noted it in two per cent of his series of elbow injuries, and Blount[1] in six per cent. It is treated by gentle reduction and immobilization in flexion. It is more commonly seen in association with fracture of the medial epicondyle than as a separate injury.

Subluxation of the radial head, or nursemaid's elbow, is frequently observed in children less than five years of age. Usually the elbow is held in flexion and the forearm in pronation. Roentgenograms aren't helpful. The diagnosis is a clinical one. Often, spontaneous reduction occurs during the process of obtaining roentgenograms. If not, reduction is obtained by quick supination of the forearm.

COMMENT

I have tried to emphasize the important points in the management of elbow injuries in children. This presentation can be considered only as an introduction to the problem. Factors in causation of altered carrying angles in supracondylar fractures haven't been discussed, and there is no unanimity of opinion regarding them. Fahey[4] has expressed the view that tilting or lateral angulation of the lower fragment is the major cause. Suffice it to say that although offset of the fragments can be accepted on the lateral view, proper alignment on the anteroposterior view is important in preventing this disagreeable complication.

Figure 7. View a shows a type of Monteggia fracture. It differs from the usual fracture of this type in that the radial neck has fractured and the head is displaced. View b was taken postoperatively. Because the radial head was markedly displaced it had to be reduced by open operation. The ulna was fixed with an intramedullary Steinmann pin.

One always is asked, "How long do you immobilize the fracture?" Facetiously, one might reply, "Until it has healed." As a rule, for nearly all elbow fractures, after four weeks the extremity can be placed in a sling, and the child can begin to limber up the elbow on his own. After five weeks, external support is usually unnecessary.

One final point is worthy of emphasis. Physical therapy to limber up the elbow is not only unnecessary but actually contraindicated. Having the child carry pails of sand or tug away at his elbow not only is useless but actually will cause limitation of motion. Instead, the child should be permitted to limber up the elbow on his own.

REFERENCES

1. Blount, W. P.: Fractures in Children. Baltimore, The Williams & Wilkins Company, 1954.
2. Conventry, M. B., and Henderson, C. C.: Supracondylar fractures of humerus: 49 cases in children. Rocky Mountain M. J., **53**:458-465, (May) 1956.
3. Lipscomb, P. R., and Burleson, R. J.: Vascular and neural complications in supracondylar fractures of humerus in children. J. Bone & Joint Surg., **37A**:487-492, (June) 1955.
4. Fahey, J. J.: "Fractures of the Elbow in Children," In: Reynolds, F. C.: Instructional Course Lectures of the American Academy of Orthopaedic Surgery. St. Louis, The C. V. Mosby Company, 1960, pp. 13-46.
5. Watson-Jones, Reginald: Fractures and Joint Injuries, Fourth Edition. Baltimore, The Williams & Wilkins Company, 1952, Vol. I, pp. 111, 131, 136-138.
6. Clayton, M. L., and Turner, D. A.: Upper arm block anesthesia in children with fractures. J.A.M.A., **169**:327-329, (Jan. 24) 1959.

Open Fractures

FRED REYNOLDS, M.D.
St. Louis, Missouri

THE COMPOUND or open fracture dates from the dawn of time, and its management dates from the beginning of medical history. Isn't it strange, in this enlightened era, that a problem of such magnitude which has been around so long isn't yet generally understood, and that its correction hasn't yet been standardized? The fact remains, however, that strong differences of opinion exist regarding many aspects of the management of these injuries, even among the most learned physicians.

Based on what I observe continually in my own locality, it seems safe for me to say that utter confusion must be the state of mind of the average physicians who are called upon to treat the ever increasing numbers of open fractures. One wonders whether in all of medicine there is a condition that is, on the average, managed so poorly as is trauma. Yet, satisfactory results can be and are being obtained by those who adhere to a few fundamental principles which I shall try to point out.

TREATMENT IN THE EMERGENCY ROOM

Rarely does a physician have an opportunity to start the treatment of open fractures at the scene of the accident, and since the principles employed when the patient is first seen in the hospital emergency room are essentially the same as those that would be employed at the accident scene, I shall not discuss treatment at the place where the injury was incurred.

In the emergency room, the physician's first and most important step is to check the patency of the airway and to establish an adequate airway if respiration has been embarrassed. His second step is to control hemorrhage, and his third is to treat shock. To establish the airway, it may be necessary to occlude a sucking wound of the chest by means of a bandage, or to stabilize the chest with Towell clip traction, or to carry out a tracheotomy. At any rate, it is of the utmost importance that an airway be established and maintained. Hemorrhage can usually be controlled by means of pressure dressings. Rarely is it necessary to apply a tourniquet, and if the patient arrives at the hospital with a tourniquet, it should be immediately released. At times, it is possible to clamp one or more small arteries that are visible in the wound. A needle is immediately placed in a vein at a convenient location, blood is drawn for typing and cross-matching, a hematocrit determination may be helpful, and intravenous fluids are started. Normal saline is best at this stage.

When the airway has been established, hemorrhage controlled and fluid balance on the way to restoration, the next step is to obtain all information possible concerning the mechanism of the injury. The history can be obtained from the patient if he is conscious, but otherwise such information as can be gathered from witnesses may be quite helpful. A careful and complete physical examination must then be carried out, and one should work from the known to the unknown. The open fractures are obvious, and it is important to assess the entire extent of injury to other bones and joints, and then to determine the status of the blood vessels and nerves in the involved extremities. When this survey has been completed, sterile pressure dressings should be applied to the wounds. I see no objection whatever to the instillation of local antibiotics in the wounds. The injured extremities are then immobilized in appropriate splints.

Medication for pain, the instigation of antibiotic therapy and immunization against tetanus should also be commenced in the emergency room. One should bear in mind, of course, that it is unwise to give morphine to patients who have been unconscious or who are in profound shock. In all probability, the best antibiotic to administer is penicillin. If the patient has had previous active immunization, a booster injection of tetanus toxoid is given. If he has not had any previous active immunization, tetanus antitoxin, 3,000 to 5,000 units, should be administered following appropriate skin testing. If the wounds are extensive and it seems likely that there will be repeated instrumentation, it probably is also advisable to start active immunization at this time, and one should bear in mind that the response to active immunization will be influenced by the amount of tetanus antitoxin administered.

REFERRAL MUST BE PROMPT!

At this stage, the physician has brought the patient under control. There is an airway, bleeding has been controlled, the wounds have been dressed,

Dr. Reynolds is a professor of orthopedic surgery at the Washington University Medical School, and he made this presentation at the 1961 annual meeting of the Iowa Medical Society.

the fractures have been immobilized, and the patient is receiving treatment for shock and for pain. The physician by this time has a pretty clear idea of the extent of injury, and he must now decide whether the institution to which the patient was brought is properly equipped to provide the indicated care, and whether his own experience or that of the other available staff members is such that the entire extent of the patient's injuries can be promptly and efficiently handled. If the institution isn't adequately prepared for the total management of the patient, or if the physicians practicing there are inadequately trained in the procedures that must be done, the patient should be transferred at this time to the nearest hospital where definitive treatment can be carried out.

Under no circumstances should wounds be closed while the patient is awaiting transfer. Likewise, it is a waste of time and a cause of considerable discomfort to the patient to have x-rays taken, unless the films are to accompany the patient.

Promptness in transferring patients is so important that I shall repeat what I have just said: It is imperative that you decide at this time whether the patient is to be transferred elsewhere. He should not be kept for one or two days and then transferred after partial therapy has been instigated. This single error accounts for many of the poor results associated with the management of open fractures. All too frequently, a patient with open injuries is moved to a center for definitive treatment several days following the accident, and in the interim his wounds have been closed after an inadequate debridement and without prompt and competent vascular repair. I cannot overemphasize the importance of your arriving at an early decision regarding transfer. If the patient is to be kept, then *treat him!* If you aren't going to be able to treat all of his injuries completely, then don't keep him!

AVOID HANDLING THE PATIENT TOO MUCH

If the patient is to remain at the institution where he was first brought, we have now reached the stage at which x-rays may be obtained. At this point, it is worthwhile recounting what happens to the patient even in many of our best hospitals. Bear in mind that the patient has been in an accident; he has been picked up at the scene of the accident; he has been put into a conveyance and has been carried to the hospital. As a rule, when he arrives at the hospital he is moved from the conveyance onto a litter or examining table. When his condition has stabilized and he is ready to leave the examining room, he usually is moved back onto a stretcher and taken to the x-ray department. There, more often than not, he is moved from the stretcher onto the x-ray table. Sometimes the radiologists, being anxious to get good and representative films, have been guilty of removing splints or even of pushing and pulling the fractured extremities—all to the discomfort and possible injury of the patient.

Once the x-rays have been obtained, the patient is moved back from the x-ray table onto a stretcher, on which he is then carried from the x-ray department to his hospital bed. There he is again moved, from the stretcher to the bed. Then he is prepared for anesthesia, and when ready is again moved from the bed to the stretcher, transported to the operating room, and there moved from the stretcher to the operating table. Although all of this may sound ridiculous, it more frequently than not accords with the actual circumstances in the management of such patients. Is it any wonder, then, that the patient arrives in the operating room in a state of shock? As a matter of fact, he has to be pretty rugged to get there at all!

When the patient comes into the hospital, he should be placed upon a stretcher that he can remain upon throughout all of his travel. The Transaver stretcher is such a vehicle. Complete resuscitation and immobilization can be carried out in the emergency room without the patient's being removed from this stretcher. He can then be taken to the x-ray department, and since this stretcher will go over an ordinary x-ray table, the films can be taken through it. He can then remain on the stretcher while he is being prepared for surgery, and all definitive surgery that doesn't require an overhead frame for skeletal traction can be carried out upon the stretcher. Thus, the patient need not be moved until the surgical procedures have been completed. This type of management will facilitate the comfort of the patient and benefit his general condition.

DEBRIDEMENT MUST BE THOROUGH

X-rays have now been obtained to confirm the diagnosis and to reveal the peculiarities of the various fractures. Therapy is next. It must always be remembered that treatment of open fractures is treatment of the wound. If one fails in treating the wound, then he fails in treating the fracture, irrespective of how beautifully it may have been reduced. The proper treatment, then, is the treatment of the wound, and the fracture should be ignored unless it is important to treat the fracture to facilitate wound healing.

Proper treatment of the wound means complete, adequate and thorough debridement. It is ideal, when possible, to carry out this debridement within six hours of the accident, when most of the organisms that have contaminated the wound remain as contaminants and haven't yet begun to multiply and to start an infection. However, the debridement should be carried out even though the patient is seen and readied for surgery at a much later time. The only open fractures in which it is permissible to treat the fracture without debridement are those in which the fractured bone has penetrated the skin in a very small area, and

in which it seems that there is unlikely to be much soft-tissue damage beneath. A decision in this regard demands a great deal of skill and surgical judgment. The other possible exception is in injuries produced by small-arms fire of low velocity, in which there is a small wound of entry and, perhaps, an equally small wound of exit. All other open fractures must have debridement.

This debridement must be carefully planned, and the patient must be readied for surgery. This means that the patient must have recovered from shock, the major portion of the blood loss must have been restored, the patient must have an empty stomach, and he must have received appropriate pre-anesthesia medication. The nasal tube is useless in attempting to empty the stomach, and the best way to assure an empty stomach is to force the patient to vomit. If the patient's general condition or his injuries contraindicate vomiting, then a skilled anesthetist may be able to pass an endotracheal tube to prevent aspiration, or it may be possible to carry out the debridement under spinal or regional block anesthesia.

The technic of the debridement, once the patient has been anesthetized, is to support the involved extremity and to make traction so that further soft-tissue damage is avoided. A sterile dressing is kept over the wound, the surrounding area of the extremity is shaved and scrubbed thoroughly with soap and water and cleansed with ether, and then the area is prepared with iodine and alcohol up to the margins of the wound. In wounds where there has been a considerable soft-tissue and skin loss, and where there is some ground-in dirt, it may be advisable to scrub the open wound with soap and water, too, but it should not be prepared with iodine or alcohol. The wound is then thoroughly irrigated with Ringer's solution, an attempt being made to wash material from the depth of the wound to the outside. After the wound has been irrigated thoroughly and cleansed as much as possible in this way, sterile drapes are applied, and the debridement is commenced.

It is necessary, as a rule, to excise a very thin edge of damaged skin. The wound is enlarged in a longitudinal fashion so that it will be possible to open fascia and muscle planes throughout the entire damaged area, conserving as much skin and viable tissue as possible. The purpose of debridement is to remove all damaged, devitalized

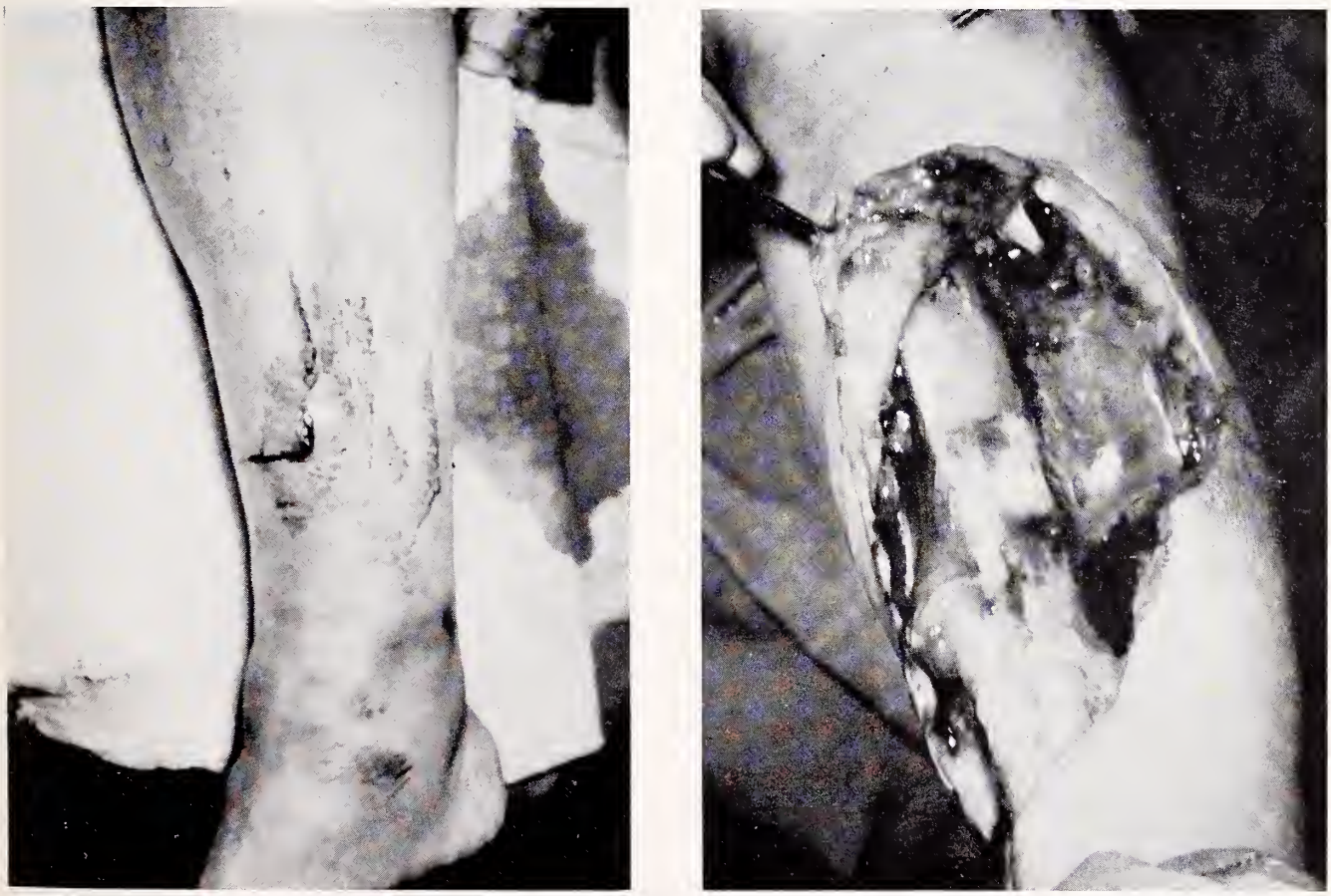

Figure 1. The top picture shows an open fracture of the leg. The extent of the wound suggests only moderate soft-tissue damage. The bottom picture was taken at the time of debridement, after the entire extent of the damaged area had been opened and all damaged and devitalized tissue removed.

tissue and all foreign substances. It is mandatory that the entire remote recesses of the injured area be exposed to clear vision, so that one can be sure that all devitalized tissue and foreign substances have been removed. Where there is a likelihood of excessive blood loss, debridement may be done under a tourniquet. However, in most instances it is inadvisable to use a tourniquet, for it is harder to judge viable and non-viable structures when the circulation has been cut off. When one is debriding certain areas, such as the hand, a tourniquet perhaps is always advisable. Small—pea-size and smaller—pieces of bone that are completely detached from soft tissue and are contaminated can perhaps be removed, except in those circumstances where there are large numbers of such small-sized pieces, the removal of all of which would create a gap in the fracture. Large pieces of bone, though they may have been detached from soft tissue and contaminated, should be cleansed and replaced.

Severed nerves may be brought together with an identifying stitch, preferably of fine wire, but should not be repaired. The same is true of severed tendons. Severed major vessels must be repaired either by suture or by graft. In all instances in which a major vessel has been damaged and has been repaired, it is mandatory that the fracture be stabilized by internal fixation.

The entire extent of the wound is now known and it has been thoroughly cleansed. All devitalized tissue has been removed, and all foreign bodies have been removed. The next questions before the surgeon are what to do about the fracture and whether the wound should be closed or left open.

INTERNAL FIXATION SHOULD BE AVOIDED WHERE POSSIBLE

The fracture should be stabilized, as I have said, when any major arterial repair has been accomplished. Certain injuries in which the soft-tissue involvement has been extensive, and in many of which there will need to be secondary procedures such as skin grafts and flaps, will heal more satisfactorily if the fractures are stabilized by internal fixation. In all circumstances where the treatment of the wound doesn't demand rigidity of the bony framework, no internal fixation is indicated. When internal fixation is indicated, however, intramedullary fixation should be employed whenever possible. One must remember that a fracture creates an area of dead bone, and when the fracture surfaces are brought together by a reduction, either open or closed, two areas of dead bone are reapposed. This fracture doesn't heal as a result of the outgrowth of bone from one end to the other. Rather, it occurs first by a bridging of that area and later by the destruction and replacement of the areas of dead bone which have lost their blood supply during the trauma of fracture. The more extensive the injury, and the greater the amount of stripping of soft tissue and loss of blood supply, the greater the area of dead bone and the greater the chance of delayed union or nonunion. Therefore, any procedures that are carried out at the same time as the debridement for internal fixation of bone have the effect of increasing the amount of bone death and, if anything, of opening up new pathways for infection. Internal fixation must therefore be avoided whenever possible.

USUALLY IT IS PREFERABLE TO LEAVE THE WOUND OPEN

The question of whether a wound should be closed or left open is one that only a skilled surgeon should answer. In general, however, one can say that if the patient has been readied for debridement within six hours following his injury, if a fair and accurate debridement has been carried out, if the surgeon is convinced that all damaged, devitalized tissue and foreign matter has been removed, and if the edges of the wound can be brought together without tension, it may be feasible to sew it up. However, in every instance the safest procedure to follow is to drain the wound lightly with fine mesh gauze. Personally, I prefer fine mesh gauze soaked in glycerine. No harm can come from leaving the wound open, and if proper debridement has been carried out and if the patient is properly managed, one should be able to close it in five to seven days by delayed suture, or by a combination of delayed suture and skin graft.

If the treatment of the wound has been successful, the injury has been converted to a closed fracture, and any adjustment in the fracture that becomes necessary may be done at the end of approximately four weeks from the time of wound healing. Following debridement, the patient may be treated in skeletal traction or (depending upon the nature and location of the fracture) in a plaster cast. Under no circumstances should nonpadded plaster casts be used, and unless a highly competent team of house officers is available, the

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Figure 2. The top photograph shows an open fracture of both bones of the leg as it appeared on the patient's arrival at our hospital, seven days after injury. An inadequate debridement had been followed by wound closure. At this stage, the physician advised the patient to undergo an amputation. The middle photograph shows the appearance of the leg one week following radical debridement. The patient was then no longer septic. The bottom picture shows the appearance of the leg following closure of the wound by split-thickness skin grafts.

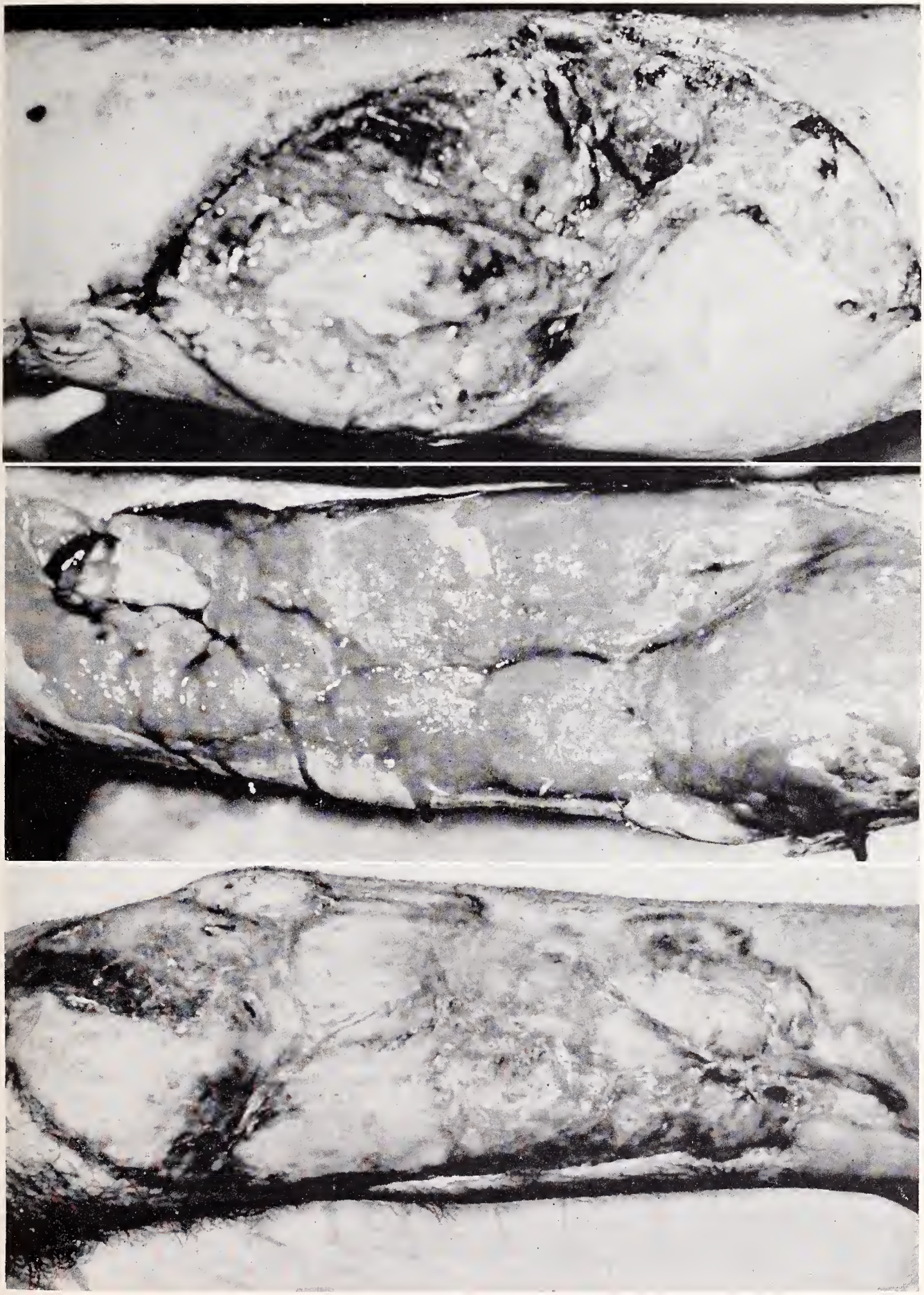

Figure 3. The top two photographs at the left show an open fracture of the tibia with extensive soft-tissue damage treated by inadequate debridement and closure of the wounds. At that time, three days postoperatively, foul-smelling gas was bubbling out of the wound over the tibia. The bottom picture at the left shows the extent of the damage after thorough debridement. The picture above and at the right shows the thigh wound after removal of all dead tissue. Surgery, blood and antibiotics relieved the toxicity, and the wound was then closed by means of skin grafts.

plaster cast should be split before the patient leaves the operating room.

POSTOPERATIVE CARE

In the postoperative period, antibiotics are continued. In all probability the major benefit that antibiotics can confer in open fracture cases has been rendered during the first 24 hours. However, it is customary to continue antibiotics for the next two or three days. Continuing them past that stage is inadvisable unless there is evidence of infection.

It is of utmost importance that the patient be observed closely during the postoperative period. Pain must be carefully evaluated. Continuing pain or pain that begins during the postoperative period, if it is of greater degree than the physician would anticipate from the particular injury, probably indicates that the patient is in trouble. Either there has been a fresh and unusual hemorrhage, or there is infection.

In almost every case of trauma, there will be an elevated temperature and pulse rate during the first 24 to 36 hours. This is anticipated and doesn't indicate wound difficulty. However, a rapid pulse, plus pain occurring on the second or third postoperative day, without temperature elevation but with the patient anxious and pale, suggests a clostridial infection. One can't wait until there is evidence of air in the tissues associated with black gangrene surrounding the wound, or a foul odor. One must be alert to the possibilities, and a clinical picture of pallor, anxiety, perhaps sweating, a rapid pulse—more rapid than

the patient's temperature justifies—and an unusual amount of pain demand careful inspection of all wounds in the operating room under good light. If the wounds have been closed, they must be opened; if they have not, their inspection is facilitated.

The diagnosis of gas gangrene at this stage is clinical. Inspection with a good light should reveal the area of muscle or soft tissue involved. Early diagnosis makes it possible to resect the involved area and often to spare the extremity. If a diagnosis is delayed until there is widespread gas in the soft tissue, foul odor and gangrenous areas on the skin, the extremity or perhaps even the patient's life has been lost!

Gas gangrene antitoxin is ineffectual in this condition and should not be used. Surgery and penicillin, plus adequate blood replacement, constitute the treatment.

Although infection with clostridial organisms is dramatic, it isn't so common as is infection with ordinary pyogenic bacteria. Pain, swelling and fever in any wound patient demand inspection of the wound. And again, the treatment is surgical drainage plus antibiotics.

Open fractures, like open reductions, are associated with a higher percentage of delayed unions and non-unions than are closed fractures. However, once one has successfully converted the open fracture to a closed one, he can carry out any reconstructive procedure necessary to restore the extremity to maximum function. No instrumentation or manipulative procedure should be carried out until the wound has thoroughly healed. This usually takes three to four weeks. Each such procedure should be preceded by antibiotic therapy. Remember that reconstructive procedures on bones and joints are almost always possible when the wounds have been properly treated and have healed, whereas the end result of failure in wound treatment is often amputation or even loss of life itself.

Adherence to the procedures that I have outlined will result in wound healing in the majority of instances. However, even under the best circumstances it is sometimes impossible to close the wound before infection occurs, and failure of wound treatment results. In those cases, thorough drainage, immobilization, antibiotics and blood replacement will be adequate to relieve the patient of toxicity and will localize the inflammatory process. If plates, screws, wires, etc. have been used to stabilize the fracture, they must be removed. However, if an intramedullary nail is in place, it should not be removed. In most instances the above treatment will allow localization of the infection to the fracture site. The problem then is one of localized osteomyelitis. One must remember that any open wound is an infected wound, in that it harbors organisms that will interfere with reconstructive procedures.

Treatment for Glaucoma

In a study reported by Ballintine and Garner,* in the September, 1961, issue of ARCHIVES OF OPHTHALMOLOGY, 70 eyes were uncontrolled in that either the intraocular pressure was high (>21) or the coefficient of outflow was low (<.18) while the eye was receiving the maximum tolerated medical therapy.

"In each case when epinephrine therapy was begun it was administered as the 2 per cent solution [Glaucon], one or two drops in the conjunctival cul-de-sac once or twice daily. The previous medical program was unchanged. When improvement in coefficient was noted (i.e., when the coefficient became >.18), the amount of medical therapy was gradually reduced. In many patients, after several months, the coefficient of outflow and intraocular pressure became normal."

The authors went on to say: "Intraocular pressure was controlled, that is, always less than 22 mm. Hg, in 58 of the eyes (83 per cent), and uncontrolled despite prolonged maximum therapy in 12 eyes (17 per cent). Of these 58 eyes in which the intraocular pressure was controlled following the instillation of epinephrine, the coefficient improved in 49 eyes (70 per cent). The coefficient was recorded as having been improved when it became greater than 0.12 and 50 per cent greater than it had been prior to the institution of epinephrine therapy."

The improvement of coefficient was subsequently lost in 10 eyes. Glaucon therapy of seven eyes had to be discontinued because of local allergy. In addition, the eyes of one patient burned intolerably, and therapy had to be discontinued for that reason.

So far as the authors are aware, this is the first instance that an anti-glaucomatous agent has been shown to improve the coefficient of outflow during prolonged therapy. With miotic therapy, improvements in coefficient are gradually lost, even with increased dosage. Two per cent epinephrine permits reduction of miotic and carbonic anhydrase inhibitors while maintaining the high coefficient of outflow.

* Ballintine, E. J., and Garner, L. L.: Improvement of coefficient of outflow in glaucomatous eyes: prolonged local treatment with epinephrine. ARCH. OPHTH., **66**:314-317, (Sept.) 1961.

Use of Nylon Lace-Mesh In Fixation of Split-Thickness Skin Grafts

WILLIAM STANFORD, M.D.
JOHN E. HUTCHINSON, M.D., and
SIDNEY E. ZIFFREN, M.D., Iowa City

MAJOR HAZARDS contributing to loss of grafts in split-thickness skin grafting processes are infection, excessive wound drainage, and inadequate immobilization. The use of a material for graft fixation which allows for constant visualization and at the same time provides a means for controlling drainage and infection is, therefore, highly desirable. Incorporation of the above principles in the method of fixation allows earlier grafting in cases of acute trauma and potential infection, and minimizes losses in the regrafting of old burns and old indolent wounds. A lace-mesh fixation technic has been described by Shea *et al.*,[1] advocating the use of an impregnated rayon mesh, and by Freeman,[2] advocating nylon or dacron wide mesh net. A method employing nylon lace-mesh (Figure 1) is described below. This economical method largely fulfills the critera that have been enumerated, by providing for adequate fixation and for evacuation of transudates and exudates from the graft site.

MATERIALS

Parresined lace-mesh dressing (Abbott) was occasionally used to immobilize grafts at University Hospitals, Iowa City. However, the method was expensive and could be used only in relatively small areas. In an attempt to find a substitute, since this material is no longer manufactured, one of us (J. E. H.) introduced inexpensive nylon lace-mesh or netting. The material comes in large bolts and sells for 59 cents per yard. It can be obtained in department stores, and is the same material as that used in dresses for women.

Experimental studies disclosed that the nylon can withstand autoclaving for 20 minutes at 250°F. and 20 lbs. pressure. In addition, overnight immersion in 1:1,000 aqueous Zephiran solution and 70 per cent isopropyl alcohol does not affect it. The material is of sufficient tensile strength to hold grafts in place, and pliable enough to mold well in difficult areas such as the neck, axilla and buttock. The thread count is 22/23 per square inch, and the material is 40 denier, dorn type nylon. Mesh of this thread count and denier provides openings of sufficient size to allow evacuation of retained secretions without the plugging that is characteristic of finer-mesh dressings.

TECHNIC

Fixation is accomplished by spraying the overlapping mesh on skin with Aeroplast,* after having taken care to cover the area over the grafts with sponges. Additional fixation was originally accomplished by circumferential silk tacking su-

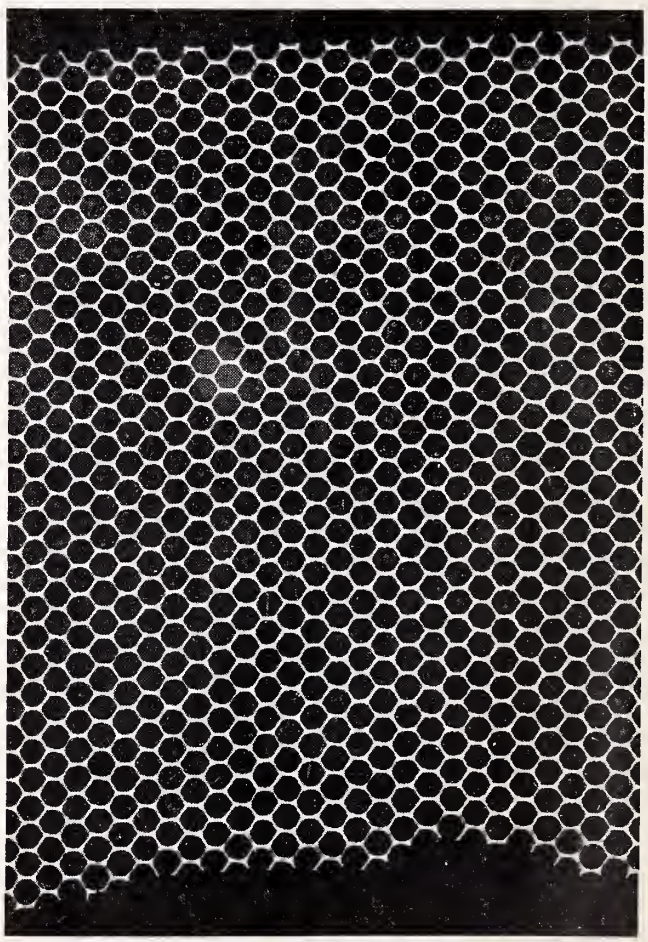

Figure 1. Small piece of nylon lace-mesh.

The authors are staff members in the Department of Surgery at the S.U.I. College of Medicine.

tures, but the Aeroplast alone proved satisfactory, and silk is no longer used.

Circumferential extremity burns are treated by fixation above and below with Aeroplast. The free edges are then approximated with running silk to form a cylinder. In other areas such as the axilla and buttock, it is necessary to cut a "V" in the material so that it will mold to the particular contour desired.

Immobilization is achieved primarily through the patient's cooperation, but when the patient has been a child or the wound has been a circumferential one of an extremity, casts and splints have been applied.

POSTOPERATIVE CARE

The usual procedure after grafting and immobilization is to apply saline-moistened sponges over the grafted area. These are changed by the nursing staff every two to four hours. Daily, or twice daily, the accumulated pus and secretions are expressed through the mesh and removed with an applicator stick. It has been found that "rolling" with an applicator stick prevents the grafts from lifting up. By the third day, the grafts are well fixed, and by the fifth day the mesh can be safely removed. The technic is best adapted to postage-stamp grafts, but can be used for small sheets as well.

* Manufactured by the Aeroplast Corporation, 420 Dellrose Avenue, Dayton 3, Ohio.

RESULTS

Sixteen grafts on nine patients have been handled by this lace-mesh method. Of those patients, six had thermal burns and two had varicose ulcers (Figure 2). The take in each case exceeded 90 per cent. In two of those patients previous grafting by other methods had failed, and when redressed the wounds demonstrated continuous profuse drainage in spite of vigorous local therapy. In no instance was an allergic reaction to nylon manifest in this series.

CASE HISTORIES

Case No. 1 (J. F.) was a 75-year-old male who had sustained thermal burns to the right patella, pretibial area, and left knee. The areas were debrided and treated with soaks, with subsequent formation of healthy granulation tissue. The right patella remained partially necrotic however, and exudate continued to escape from around it. After suitable granulations had developed, split-thickness postage-stamp grafts were applied to an area adjacent to the margins of the necrotic bone. The take after five days was 90 per cent.

Figure 2. Method of fixation of postage-stamp grafts on a varicose ulcer. The take was 100 per cent.

Figure 3. Fixation of grafts by nylon lace-mesh. Immobilization is by plaster. The take was 100 per cent.

Figure 4. Postage-stamp grafts applied after a failure of primary grafting. The photograph is of the patient's right flank on the first postoperative day. The take was 100 per cent.

Case No. 2 (R. F. J.) was a 70-year-old man who had sustained third-degree burns to both legs when a stove caught his clothing on fire. The burn was so extensive as to require above-the-knee amputation on the left. After suitable granulations had formed, the stump was grafted. By folding the mesh and cutting "V's" from each corner, we formed the mesh to the contour of the stump. On the third postoperative day, the patient rubbed off part of the grafts from the underside of the leg. We discovered this, and by lifting a corner of the mesh we were able once more to cover the affected area with storage autografts without disturbing the remainder of the grafts. The take was 90 per cent.

Case No. 3 (K. H.) was a 7½-month-old girl who had sustained burns of her right arm when she pulled a vaporizer upon herself. The involved area was grafted and immobilized by the pressure method. Unfortunately, the immobilization was inadequate and all of the grafts were lost. In a subsequent attempt, plaster and lace-mesh were applied in the manner shown in Figure 3. The take was 100 per cent.

Case No. 4 (L. B.) was an 83-year-old debilitated woman. She developed a large basal cell carcinoma with satellite nodules on her right flank. This area was excised, and split-thickness grafting was done. The patient had prominent iliac crests, and immobilization was difficult. The take was only 70 per cent. Regrafting was done with fixation as shown in Figure 4, and the take was 100 per cent.

SUMMARY

Fixation of skin grafts by nylon lace-mesh has been described. This method permits removal of secretions and at the same time provides adequate fixation of the graft to its bed. The mesh is cheap and widely available.

REFERENCES

1. Shea, P. C., Reid, W. A., and Wilkinson, A. H.: Use of rayon mesh in skin grafting and granulating wounds. Surg. Gynec. & Obst., **103**:241-243, (Aug.) 1956.
2. Freeman, B. S.: Immobilization of skin grafts by wide-mesh net. Plast. & Reconstr. Surg., **27**:194-200, (Feb.) 1961.

SIOUX VALLEY MEDICAL ASSOCIATION
Sioux City, Iowa

WEDNESDAY, FEBRUARY 14, 1962

7:00 P.M. Hospitality Room—Sheraton Martin Hotel

THURSDAY, FEBRUARY 15, 1962

Morning Session

St. Joseph Mercy Hospital

8:30 REGISTRATION—St. Joseph Mercy Hospital

9:00-10:15 PANEL—LABORATORY PROCEDURES: INDICATIONS AND SIGNIFICANCE
Henry Caes, M.D., Pathologist, St. Joseph Mercy Hospital
Paul F. Smith, Ph.D., South Dakota Medical School
Edwin H. Shaw, Jr., Ph.D., South Dakota Medical School

10:30-11:00 "Interpretation of EKG With Training Aid"—R. C. Larimer, M.D.

11:00-11:20 "Arterial Injury and Repair: Case Report" A. Kelly, M.D.

11:20-11:40 "Skin Hazard in Farmers"—H. Leiter, M.D.

11:40-12:00 "Electroencephalography: Indications and Significance"—G. Rausch, M.D.

Afternoon Session

Sheraton Martin Hotel

1:30-2:00 MOVIE—"Complicated Appendicitis"

2:00-2:30 "Athletic Injuries"—Donald Lannin, M.D., Director of Shrine Hospital, Minneapolis

2:30-3:00 "Urgent Surgery of New Born"—Bernard Spencer, M.D., Surgery of Infants and Children, Minneapolis

3:15-3:45 "Knee Injuries in Athletics"—Donald Lannin, M.D.

3:45-4:15 "Elective Surgery of New Born"—Bernard Spencer, M.D.

5:30 SOCIAL HOUR AND DINNER

7:00 DINNER—Ballroom
Banquet Speaker: Honorable Jack E. Miller, United States Senator

FRIDAY, FEBRUARY 16, 1962

Morning Session

Sheraton Martin Hotel

9:00 MOVIE—(1) "Next Step"
(2) "Cancer Detection: Proctoscopy in Office Practice"

9:30 "Bleeding in the First Weeks of Life"—Robert Carter, M.D., Associate Professor of Pediatrics, S.U.I.

10:00 "Use of New Progestational Drugs in Ob and Gyn"—Clifford Goplerud, M.D., Associate Professor, Ob and Gyn, S.U.I.

11:00-12:00 "Cancer Chemotherapy"—Fred Ansfield, M.D., Cancer Research Center, University of Wisconsin

12:00 LUNCHEON—Sheraton Martin Hotel

1:30-2:00 MOVIE—"External Cardiac Resuscitation"

2:00-2:45 "Control and Management of Nasal Hemorrhage"—O. E. Halbert, M.D., Mayo Clinic

3:00-3:30 "Jaundice in Neonatal Period"—Robert Carter, M.D.

3:30-4:00 "Surgical Treatment of Incompetent Cervical Os"—Clifford Goplerud, M.D.

Visual Responses to Cortical Stimulation in the Blind

JOHN BUTTON, M.D., Des Moines, and
TRACY PUTNAM, M.D., Los Angeles

In the last half-century electrical stimulation studies of the human brain under local anesthesia have become relatively common. As a result, it is now well known that stimulation of Broadmann's Area 17 produces the sensation of crude visual phenomena projected to the contralateral side. Stimulation of adjoining areas may elicit more complicated visual images. The subject has been reviewed by Lazarte[2, 19, 21] and by Penfield and Jasper.[23, 26]

The idea that electrical stimulation of the occipital cortex might be employed as a substitute for normal vision in the blind is not new. It has been discussed for at least three decades. In 1955, Shaw[27] took out a patent on a device to aid the blind through direct stimulation of the visual cortex. He proposed to employ a conventional oscillator modulated by a photocell, with leads attached directly to electrodes implanted in the cortex and brought out through the scalp, as Heath[28] and others had done for different purposes. He also proposed using the output of the oscillator to supply a large solenoid surrounding the scalp outside of the occipital lobe. We doubt that such a device would be successful as described, and Shaw apparently never carried out any actual experiments.

Technics for stimulating intracranial structures at will over long periods of time in animals are well known to physiologists. Among the more sophisticated of these are a buried solenoid, as employed by Light,[29] and a tuned radio receiver, as demonstrated by Fender.[30] Actual use of the former principle in two human subjects has been reported by Djourno,[18] who was able to restore a sort of crude hearing by that means.

These possibilities have been familiar to neurologists for many years. There are, however, certain equally well recognized objections to their practical utlization in the treatment of blindness. The first of these is evidence that long-standing optic atrophy is followed by an atrophy of the central visual system (pointed out by von Gudden, Henschen and others), so that the occipital cortex of a blind person may not be so receptive of artificial stimuli as is that of a normal individual. The second is that normal vision is carried out by means of an enormous number of nerve cells and fibers composing a mosaic in the retina, tract, geniculate body and calcarine cortex.[32] It is hardly conceivable that an artificial device could furnish as many channels, and difficult to imagine that it could provide enough channels to create even a crude spatial image.

A further practical difficulty is that of obtaining a blind volunteer for the pioneering experiments. We were fortunate, however, in obtaining three such volunteers, and consequently were able to show that the first of the above objections is invalid, at least in some cases. Our investigations were undertaken before we learned of Shaw's proposal.

CASE NO. 1

Miss Betty C., age 36, had suffered a somewhat obscure illness at the age of 18 years. The diagnosis of a tuberculoma of the occipital region was made, and a decompressive operation was carried out over the left occipital bone, leaving a defect. Unfortunately, the medical records of that illness have been lost. It is clear, however, that she recovered from the acute illness and has remained in good general health, but with a complete bilateral optic atrophy. This has been reported by several physicians who have examined her, including some at the Mayo Clinic. The optic discs are flat, chalk-white and completely incapable of visual perception. The patient has lived the secluded life of a completely blind individual. She has learned to read Braille and to take care of her personal needs, but does not go out alone and has never sought employment.

When the possibility was explained to her that she might temporarily receive crude impressions of light as the result of a simple operation and electrical stimulation, she agreed to the experiment and proved most cooperative.

After some discussion we decided to utilize this opportunity in the simplest and safest possible manner, and to leave elaboration to the future. Accordingly, on October 29, 1957, the patient was brought to the operating room under light seda-

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tion, and the occipital area was shaved. She was then placed face downward on the operating table with a cerebellar headrest, and under local anesthesia four small burr-holes were made just lateral to the external occipital protuberance, on either side. Through each, an 18-gauge spinal needle was inserted to varying depths. Next, a 26-gauge stainless steel insulated wire with 1 mm. of the tip scraped bare was inserted through each needle, and the needle withdrawn over it. Thus, wires were left 1 cm. lateral to each side of the occipital protuberance at its upper rim, inserted to depths of 3 cm. and 5 cm., respectively, and a second set of wires 1 cm lateral to the protuberance at its lower rim were left inserted to depths of 1.5 cm. and 7 cm., respectively. Of these, the wires situated at depths of 3 and 5 cm. gave the most satisfactory results.

An attempt was made to lead off electroencephalograms from the electrodes, but this phase of the experiment had to be abandoned for technical reasons.

Next, a stimulating current was applied to various pairs of the electrodes. The patient reported the sensation of flashes of light as soon as a current of 20 volts at a frequency of 8 pulses per second was applied. The optimum stimulus with the apparatus that we used appeared to be 25 volts, 75 pulses per second and approximately 620 microamperes, transmitted as a square wave. A higher voltage produced moderate local discomfort, and a high rate (up to 100 pulses per second) produced no change in the sensation. The d.c. impedance between the electrodes was measured at 20,000 ohms.

The wires were left in place, and a sterile dressing sealed with collodion was applied. Antibiotics were administered. Meanwhile, a crude light-controlled stimulator was assembled. This provided a somewhat distorted unidirectional square wave that could be transmitted to the buried electrodes through a cadmium sulfide photoelectric cell connected in series. In the dark, only a few microvolts were transmitted. In a bright light, the maximum current received by the patient measured 15-25 volts, 620 microamperes, at a rate of 120 pulses per second, with a pulse duration of .1 milliseconds.

When this device was attached to the buried wires, it was at once clear that the patient could tell whether the photocell was illuminated brightly, dimly or not at all. With a few moments' practice, she learned to point the photocell at the light in the room. This she did repeatedly, pointing directly at a 40-watt bulb regardless of where, unknown to her, it had been moved. She described the sensation as a sort of diffuse illumination appearing across her entire visual field, somewhat as the sun might appear to a sighted person through closed eyelids. Following these tests, the electrodes were removed.

Three months later, wires were reinserted in approximately the same locations through new drill holes. On that occasion, four 40-gauge stainless steel Formvar-covered wires were used, the upper two inserted to a depth of 4 cm., and the lower to a depth of 1.5 cm. They were inserted through 22-gauge spinal needles, which were then withdrawn.

The special vibrator stimulator was applied to the wires in various paired combinations, and current was applied as before. Light perception which the patient described as "dazzling," but not in the least uncomfortable, was obtained through the upper wires. Moderate light perception was obtained through the lower wires, the patient reporting that it produced a "tingling in the back of my head." We realized that the lower wires had been implanted too close to the dura (at too shallow a depth) for complete comfort, and terminated the operation because of fatigue on the part of the patient. The implants were sutured to the scalp, and the exit wounds were sealed with collodion. Antibiotics were given as before. The wires were well tolerated over the days that they were left in place. Two days later, the following experiments were performed.

Experiment No. 1. Two cadmium sulfide photoelectric cells were attached in series with the output voltage of the vibrator-supply, which in turn was connected to the upper and lower wires. Holding the cells in her hand, the patient readily pointed at lighted lamps containing bulbs of 40- to 120-watt intensities in her vicinity, perceived evidence of objects lying in reflected light, pointed out the locations of windows through perception of daylight, and perceived the light from the small candles on her birthday cake. With the vibrator-supply placed in a shoulder-bag, she was able to negotiate an illuminated obstacle course without error. It consisted of lighted lamps spaced at intervals throughout a large room. Motion pictures were obtained of that performance. The current received by the patient during all of the above tests measured:

20 volts
620 microamperes
120 cycles per second
0.1 milliseconds pulse duration
20,000 ohms d.c. impedance between implants.

Experiment No. 2. The implants were connected to a square-wave generator capable of operating at varying frequencies, whereas the original vibrator had operated at a fixed frequency of 120 cycles per second. Steady, diffuse light was perceived by the patient at from 50 to 100 cycles per second. When the frequency was reduced to 20 cycles per second, the patient perceived rhythmic flickering.

Experiment No. 3. The implants were attached through the square-wave generator to an electronic photocell. Light was beamed at the photocell through an old-type television scanning disc. A small photo film negative containing a pattern of lines was pasted over the photocell, and an attempt was made to scan the pattern. Flickering

shadows were perceived by the patient, but only when the disc was turned slowly by hand.

Experiment No. 4. When the original vibrator-supply and cells were attached to the upper and lower wires at each occipital pole, respectively, light was reported by the patient over the contralateral eye.

Experiment No. 5. The patient reported that she received a "different" type of light impression when, unknown to her, the square waves were converted into sine waves and back again.

Experiment No. 6. The original vibrator and a second square-wave generator were attached, respectively, to each of two pairs of cadmium sulfide photoelectric cells, and thence to the four implants in successive combinations of polarity. In all tests, the patient reported perceiving varying patterns of light which she described generally as "bright balls of light against a background of dimmer light." This effect was consistently achieved when the two pairs of photoelectric cells were held simultaneously at different distances from the source of the illumination.

CASE NO. 2

Miss Agnes S., age 32, had suffered a severe head injury as a result of a fall at age 5. When she recovered consciousness she was blind, and a complete optic atrophy developed. At present, she has no light perception whatever, and no memory of ever having experienced vision. She was given special training in childhood and adolescence, and became expert in reading and writing Braille. She graduated with honors from college, and secured employment as a teacher. This young lady learned of our initial experiments, and volunteered for tests on herself.

Under local anesthesia and light sedation, four drill holes were made approximately as in Case No. 1. As before, 40-gauge stainless steel insulated wires were inserted through the holes by means of 20-gauge spinal needles. The same stimulator was applied. In the operating room, the results were disappointing, for the patient experienced only pain from the stimulation.

The wires were sealed in place with collodion dressing, and the patient returned to her home. Antibiotics were administered. More elaborate experiments were then carried out, using the same photocell-modulated equipment, at various intervals up to eight weeks. The discomfort resulting from stimulation gradually decreased as healing proceeded, and gradually the patient began to undergo an unfamiliar visual experience. She described it by saying, "I seem to see some kinds of waves and shimmerings. . . . They're hard to describe. Whatever it is that I'm seeing, it's definitely *something* besides the *nothing* that I'm used to." On another occasion she remarked, "That must be the sun!" The vividness of the experience seemed to grow with practice, but as a whole it was never so clear or satisfactory as in the first case, and it cannot be used for guidance until improvement is manifested in future experiments. The wires were left in place and perfectly tolerated for 10 weeks. Then they were removed without discomfort or inconvenience.

CASE NO. 3

Charles C., age 48, a Negro, had lost the sight of his left eye 32 years ago, and of his right eye

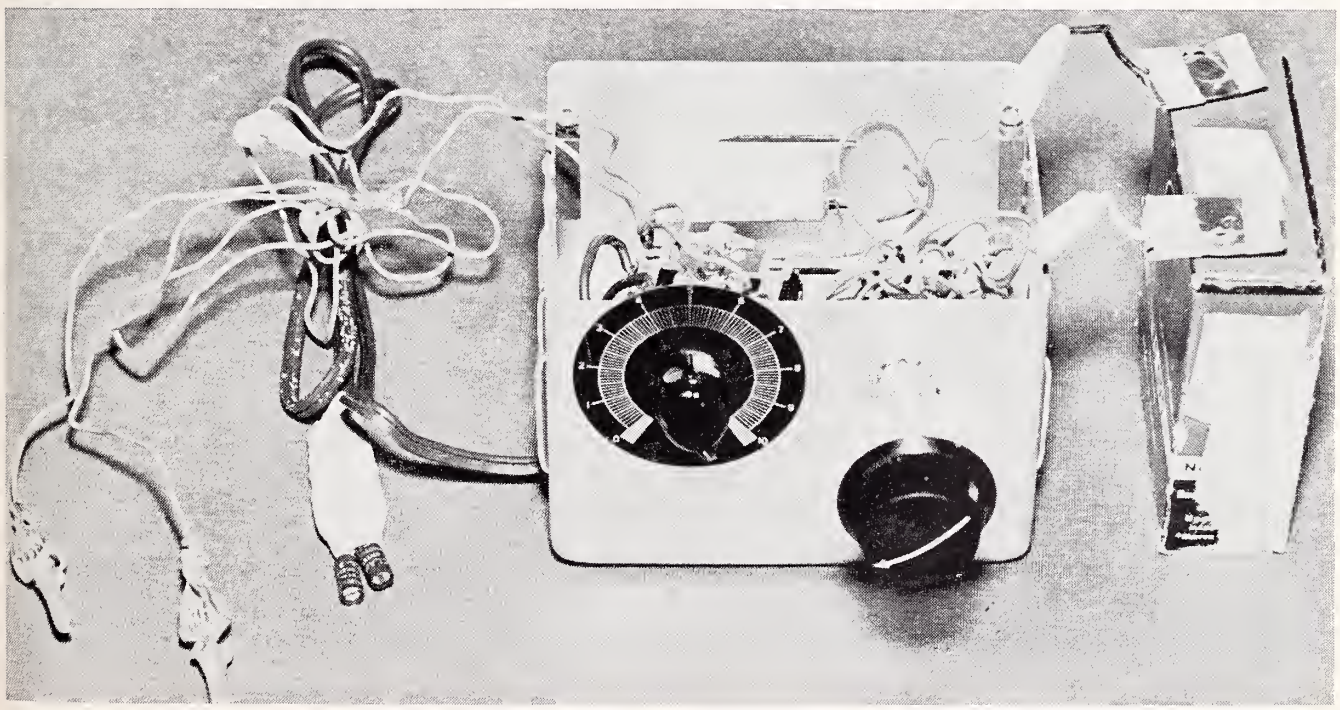

Figure 1. External apparatus used in preliminary attempts to enable blind patients to "see." Two cadmium sulfide photoelectric cells were attached in series with the output voltage of a vibrator supply, which in turn was connected to wires implanted at varying depths lateral to the patient's external occipital protuberance.

eight years ago. The cause had probably been glaucoma, though an exact history could not be obtained. Examination of his eyes prior to the present experiment revealed fixed, distorted pupils and degenerative opacities in both anterior chambers, making a study of the eye grounds impossible. There was no light perception whatever in the left eye. In the right eye there was minimal light perception when a strong flashlight was held directly against the pupil.

The patient was a trained electrical repairman for the Goodwill Industries in his town. He was extremely likeable and cooperative, and understood thoroughly the nature of the experiment. He had volunteered, he said, "to help the doctors invent a way for all blind people to see."

Under local anesthesia and light sedation as before, four drill holes were made approximately as in the other cases. Stainless steel wires .003 inches in diameter, stranded together in groups of six, were inserted through 20-gauge needles into three of the burr holes. An unexplained obstruction met the drill in the fourth hole, and that hole was abandoned. The inserted ends of the wires were staggered so that as much contact as possible could be made with the cortical cells, and the insulation at each tip had been scraped off as before. The total number of wires within the visual cortex was 18, at depths ranging from 3 to 6 cm. When the original stimulator was applied, the patient obtained excellent light perception through all implants. The current specifications measured the same as in the two previous cases.

Experiments: The patient was subjected to all of the experiments described above in the discussion of Case No. 1, and his performance accuracy was 100 per cent. In addition, he was able to follow the beam of a small flashlight carried by an attendant approximately 15 feet in advance of him.

When the generator and photocells were attached to just two wires within a single group, the patient reported narrowed fields of light perception over the contralateral eye. This was a highly desirable finding, for it was felt that it marked a step toward eventual image and outline perception.

According to the patient, there was no difference between the degrees of light perception over the two eyes, despite the fact that one eye had been blind for 32 years and the other for only eight.

When two sets of photocells and two generators were attached to two groups of wires, the patient reported seeing patterns of light in two colors—red and white.

The wires were removed after three weeks to rest the patient during the construction of new equipment.

NEUROPHYSIOLOGICAL STUDIES

Square-wave and sine-wave currents of the specifications used in the above experiments were applied to the visual cortical cells of the five fresh cadaver brains for periods up to one hour continuously, and to the visual cortical cells of two living rhesus monkeys. Subsequent microscopic examination revealed no evidence of damage to the cells. These studies, however, are still in progress, and will continue until the safety of the above-described procedures in living subjects has been ascertained.

DISCUSSION

It is clear from these experiments that the visual cortex remains viable and capable of receiving stimulation interpretable as visual experience for many years after the destruction of the optic nerves. Interpretation of the visual experience, however, is difficult when there is no memory of sight.

Obviously, implanting wire electrodes haphazardly in the region of the visual cortex, and bringing them out through the scalp, must be regarded as a crude and unsatisfactory procedure. The use of flat electrodes with multi-point contacts laid on the surface of Area 17 probably would be more effective. Doubtless some more refined method of transmission through the scalp, such as that employed by Djourno, would be more satisfactory, and we are at present designing such a device and also a more nearly adequate oscillator. We are aware, furthermore, that our current requirement is excessive. Human vision requires only a hundred-millionth of a volt (Lipetz and others). With more efficient apparatus and a consequent marked lowering of the voltage requirement, no discomfort whatever should be experienced by the patient. More importantly, there would be considerably less danger of over-stimulation, with its possibly damaging effect on tissue. At any rate, our experiences and the data we have acquired have led us to formulate, at least roughly, the rather rigid requirements of the total system. They are too complicated, however, and still too theoretical for further consideration here.

SUMMARY

In three cases of bilateral optic atrophy, wire electrodes were implanted in the visual cortex of the occipital lobe. Application of an adequate stimulating current to those electrodes produced visual experiences in all three patients. With the aid of a special oscillator controlled by photocells, two of the patients readily learned to recognize the relative brightnesses of various objects and to guide themselves about a lighted room. When added equipment was attached, two of the patients reported perceptions of patterns of light, and one of them reported color perception (red and white).

Preliminary experiments in which identical currents were applied to the visual cortex in each of several living rhesus monkey brains and in cadaver brains, for periods far in excess of those during which the living human subjects were sub-

jected to them, revealed no evidence of cell damage.

REFERENCES

1. Bickford, R. G., Petersen, M. C., Dodge, H. W., Jr., and Sem-Jacobsen, C. W.: Symposium on intracerebral electrography; observations on depth stimulation of human brain through implanted electrographic leads. Proc. Staff Meet., Mayo Clin., **28**:181-187, (Mar. 25) 1953.
2. Lazarte, J. A.: Personal communications, 1956, 1957, 1958.
3. Dodge, H. W., Jr., Bickford, R. G., Bailey, A. A., Holman, C. B., Petersen, M. C., and Sem-Jacobsen, C. W.: Technics and potentialities of intracranial electrography. Postgrad. Med. **15**:291-300, (Apr.) 1954.
4. Sem-Jacobsen, C. W., and Petersen, M. C.: Method for examining electrodes and after-discharges during electrical stimulation. Electroencephalog. & Clin. Neurophysiol., **8**:145-146, (Feb.) 1956.
5. Gerard, R. W., Marshall, W. H., and Saul, L. J.: Electrical activity of cat's brain. Arch. Neurol. & Psychiat., **36**:675-738, (Oct.) 1936.
6. Klüver, H., and Bucy, P. C.: Psychic blindness and other symptoms following bilateral temporal lobectomy in rhesus monkeys. Am. J. Physiol., (Abst.), **119**:352-353, (June 1) 1937.
7. Lashley, K. S.: Mechanism of vision; cerebral areas necessary for pattern vision in rat. J. Comp. Neurol., **53**:419-478, (Dec.) 1931.
8. Poliak, S.: Projection of retina upon cerebral cortex based upon experiments in monkeys. A. Res. Nerv. & Ment. Dis., **13**:535, 1934.
9. Putnam, T. J., and Putnam, I. K.: Studies on central visual system; anatomic projection of retinal quadrants on striate cortex of rabbit. Arch. Neurol. & Psychiat., **16**:1-20, (July) 1926.
10. von Bonin, G., Garol, H. W., and McCulloch, W. S.: Functional organization of occipital lobe. Biol. Symposia, **7**:165-192, 1942.
11. Weinberger, L. M., and Grant, F. C.: Visual hallucinations and their neuro-optical correlates. Arch. Ophth., **23**:166-199, (Jan.) 1940.
12. Dodge, H. W., Jr., and others: Symposium on intracerebral electrography; technic of depth electrography. Proc. Staff Meet., Mayo Clin., **28**:147-155, (Mar. 25) 1953.
13. Tassicker, Graham: Personal communications, 1957-1958.
14. Van der Kloot, William G.: Personal communications, 1957.
15. Ormerod, F. C.: Personal communications, 1957.
16. McNall, J. W.: Personal communications, 1957.
17. Djourno, Andre: Personal communications, 1957-1958.
18. Djourno, A., and Eyries, C.: Prosthese auditive par excitation electrique a distance du nerf sensoriel a l'aide d'un bobinage inclus à demeure. Presse med., **65**:1417, (Aug. 31) 1957.
19. Sem-Jacobsen, C. W., Petersen, M. C., Dodge, H. W., Jr., Lazarte, J. A., and Holman, C. B.: Electroencephalographic rhythms from depths of parietal, occipital and temporal lobes in man. Electroencephalog. & Clin. Neurophysiol., **8**:263-278, (May) 1956.
20. Djourno, A.: La methode des induits et ses applications. Presse med., **65**:1353-1354, (Aug. 3) 1957.
21. Sem-Jacobsen, C. W., Petersen, M. C., Lazarte, J. A., Dodge, H. W., Jr. and Holman, C. B.: Intracerebral electrographic recordings from psychotic patients during hallucinations and agitation; preliminary report. Am. J. Psychiat., **112**:278-288, (Oct.) 1955.
22. Merry, John: Personal communication, 1958.
23. Penfield, Wilder, and Jasper, Herbert: Epilepsy and the Functional Anatomy of the Human Brain. Boston, Little, Brown and Company, 1954, pp. 54-68.
24. Gastaut, H.: Enrigistrement sous-cortical de l'activité electriqué spontanée et provoquée du lobe occipital humain. Electroencephalog. & Clin. Neurophysiol., **1**:205-221, (May) 1949.
25. Delgado, J. M. R.: Some Functions of the Brain Studied in Waking Animals; With Possible Diagnostic and Therapeutic Applications to Human Patients. New Haven, Yale University School of Medicine, 10 pp.
26. Penfield, Wilder, and Rasmussen, Theodore: The Cerebral Cortex of Man: A Clinical Study of Localization of Function. New York, The Macmillan Company, 1950, 248 pp.
27. Shaw, D.: Method and Means for Aiding the Blind. U. S. Patent No. 2,721,316. Oct. 18, 1955.
28. Hodes, R., Heath, R. G., Founds, W. L., Llewellyn, R., and Hendley, C. D.: Implantation of cortical electrodes in man by stereotaxic method. Am. J. Physiol., (Abst.), **171**:735-737, (Dec.) 1952.
29. Light, R. U., and Chaffee, E. L.: Electrical excitation of nervous system—introducing new principle: remote control; preliminary report. Science, **79**:299-300, (Mar. 30) 1934.
30. Fender, F. A.: Epileptiform convulsions from "remote" excitation. Arch. Neurol. & Psychiat., **38**:259-267, (Aug.) 1937.
31. Djourno, A., Kayser, D., and Guyon, L.: Sur la tolerance parle neuf d'appareils electriques d'excitation inclus a demeure. C. Rend. Soc. Biol., **149**:1882-1883, (Nov.) 1955.
32. Putnam, T. J. and Liebman, S.: Cortical representation of macula lutea with special references to theory of bilateral representation. Arch. Ophth., **28**:415-443, (Sept.) 1942.

Figure 2. Holding photoelectric cells in front of him, the blind patient follows the technician around the room. He could "see" the flashlight beam, and another patient with the same equipment could even locate windows through which daylight was coming from outside.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 19-YEAR-OLD MAN was admitted to the University Hospitals with a sudden onset of blindness and gradual deterioration into a poorly responsive state.

At five years of age he had been operated upon for the correction of a tetralogy of Fallot by anastomosis of the right subclavian and pulmonary arteries. The results had been extremely good, for he was able, in subsequent years, to attend school and to do heavy farm work. There was no history of cardiac failure.

On the morning of the day prior to his admission, he had apparently been in excellent health. The week before, he had had a "cold" without fever, and two months earlier, he had had some teeth filled but none extracted. He had been shovelling corn, on the afternoon before his admission, when he experienced sudden loss of vision. His fellow workers said that he then staggered around and "turned blue all over." He was able to walk with some help, and was taken to the local hospital. Oxygen therapy was started, and his color improved. He was then able to talk and to distinguish light from dark. His physician said that he was not in shock and was not dyspneic. An hour after his arrival at that local hospital, however, he became less responsive, thrashed wildly and vomited several times. During the night, he was completely unresponsive, and his extremities became fixed in extension. His pulse remained regular. That night, he became febrile. A lumbar puncture was done, and 84 cells (type not reported) were found. On the next day, he was transferred to University Hospitals.

On his arrival here, he had an upper respiratory obstruction from vomitus and secretions, and a nasotracheal tube was put in place. His temperature was 108°F. (rectal), and it was reduced by means of ice water enemas and cold packs. His pulse was 110/min. and regular. His blood pressure was 110/? mm. Hg, and he was responsive only to very painful stimuli. His extremities were in extension. His pupils were dilated and fixed, and there was a bilateral Babinski response. The optic discs appeared normal. The neck was not stiff. The left heart border was at the anterior axillary line. The right ventricle was overaccessible. There was a continuous thrill in the suprasternal notch. On auscultation, a to-and-fro murmur was heard over the manubrium. Low along the left sternal border at the fifth intercostal space was a very loud, snapping first sound and a grade 2 systolic murmur which was less loud in the fourth intercostal space. The lung fields were normal on auscultation. The liver and spleen were not palpable. There was no edema, no petechiae and no enlarged lymph nodes. The right brachial pulse was strong, but the radial pulse was weak as compared to the left side. He was cyanotic and had clubbed fingers.

Initial laboratory studies were as follows: Urinalysis—specific gravity 1.014, pH 6, no albumin, no sugar, no blood, and microscopic examination clear. Blood examination—hemoglobin 15.8 Gm., red blood cell count 5,790,000/cu. mm., white blood cell count 17,800/cu. mm., hematocrit 55 per cent. Lumbar puncture—pressure 100 mm. H_2O, red blood cells 200, white blood cells 1,080 with 98 per cent polymorphonuclear leukocytes, Pandy reaction 1+, sugar 69 mg./100 ml., protein 63 mg./100 ml., blood sugar 77 mg./100 ml. An electrocardiogram was abnormal, showing right ventricular hypertrophy and an auricular and ventricular rate of 125. A film taken by portable x-ray showed the lung fields to be clear and the heart to be of normal shape and size. Two blood cultures were reported as showing no growth, and one was reported as showing Staphylococcus epidermidis. A spinal fluid culture showed no growth and was negative for fungi.

The patient's condition changed very little during the next week. A tracheotomy was done on the day after his admission. He was febrile, with temperature between 102° and 99.4° F. (rectal). He had intravenous feedings of 4,000 ml. the first two days, and then of 2,000 ml. per day. His urinary output was not measured, but was said to be adequate. Antibiotics were given after the first specimens for culture had been obtained—penicillin, 800,000 units every eight hours, and streptomycin, 1.0 Gm. every 12 hours.

A second lumbar puncture was done six days after the patient's admission. The pressure was 160 mm. H_2O, there were 100 red blood cells but no white blood cells, the sugar content was 68 mg./100 ml., and the cultures were negative.

One week after admission, he rather suddenly developed rapid and labored respirations, and his pulse rate quickened. It was noted that he had not put out any urine for the previous six hours. His blood pressure was 138/56 mm. Hg, and his neck veins were distended. An electrocardiogram demonstrated a ventricular rate of 176/min. and an auricular rate of 333/min. A repeat chest film showed a considerable emphysema of the right lower lobe, with some shift of the mediastinal structures to the left. The patient was given intravenous and later intramuscular Lanatosid-C. A few hours later, it was necessary to maintain his blood pressure with norepinephrine, but this measure proved ineffective within a few hours. The patient died one week following his admission and about 12 hours after the sudden change in his pulse and respiratory rates.

SUMMARY OF CLINICAL DISCUSSION

Dr. R. J. Joynt, Neurology: The CPC for today concerns a boy with a congenital heart defect that had been operated upon. He got along very well until he had a cataclysmic episode that eventuated in his death. First, I shall call upon a student, Mr. McBride, to discuss the case.

Mr. John W. McBride, junior ward clerk: The patient being discussed today was operated upon at the age of five years for tetralogy of Fallot. The Blalock-Taussig procedure performed at that time is not a corrective one but gives symptomatic relief in that it increases the effective pulmonary blood flow and, therefore, augments the oxygen saturation and relieves the cyanosis. Clubbing of the fingers may be decreased, but may remain. The hemoglobin and hematocrit, or the polycythemia of these patients, may be brought to normal or to near-normal values, and these individuals may be able to work satisfactorily, as did this young man.

We are told that the patient had had some teeth filled two months before his admission here, and that he had had a "cold" without fever about one week before he fell ill. With the heart lesions of a tetralogy, we have to consider subacute bacterial endocarditis. The emboli that are commonly noted with subacute bacterial endocarditis are usually small and numerous. With these things in mind, we should like to attempt fitting the symptoms and signs of this man's lesions into the picture characteristic of subacute bacterial endocarditis.

We are told that he had been diagnosed and operated upon for tetralogy of Fallot. The overaccessible right ventricle, the grade 2 systolic murmur heard in the third and fourth interspaces to the left of the sternum, the cyanosis and clubbed fingers, the electrocardiographic findings of right ventricular hypertrophy and the x-ray findings that showed a heart of normal shape and size—all of these are usual in patients with tetralogy. We believe these findings are compatible with, and not usually changed by, the Blalock-Taussig procedure. The murmur heard over the manubrium is described as having been a "to-and-fro murmur." We're not quite sure what that means, but we think that it describes merely the continuous murmur often heard after the Blalock-Taussig procedure. It can be called a to-and-fro murmur because the second sound is heard in the middle of it. The blood pressure reading "110/? mm. Hg" is also unclear to us, but we think it means that the diastolic pressure was zero, or nearly zero, and such a finding is frequently reported following this particular operation. The "snapping" first sound at the fifth interspace to the left of the sternum may have been due to an increased pressure in the right ventricle or to an increased volume in the left, with a snapping closure in the A-V valves.

The non-palpable liver and spleen, normal lung findings and lack of edema on the patient's arrival here were merely indications to us that this patient was not in cardiac failure, which is often the cause of death for these individuals.

The only indication for the sudden onset of blindness that we have to offer—one that would not result in macular sparing—is bilateral occipital infarct. We aren't told what happened to his sight until later. After oxygen therapy had been instituted, he was able to distinguish light from dark. The bilateral occipital infarct is possibly best explained by bilateral posterior cerebral artery occlusion, possibly due to emboli or due to an embolus of the basilar artery. The patient was not dyspneic or in shock at the time, and we feel that this would have been compatible.

He became blue, possibly because of anoxia of the medulla and respiratory center. He became less responsive subsequently, thrashed wildly, vomited, and later became febrile, at one time having a temperature of 108°F., rectally. His extremities became fixed in extension. He had a heart rate—possibly tachycardia—of 110/min., but we don't know what his normal pulse rate had been earlier. He had 84 cells of an unknown type in his cerebral spinal fluid. He was responsive only to painful stimuli. His pupils were dilated and fixed, and there were bilateral Babinski responses. We feel that these findings are best explained by an embolus or by emboli to the circulation of the brain stem—this being the basilar artery. We also feel that the weak radial pulse and the strong brachial pulse suggest emboli or an embolus.

In the laboratory studies done at this hospital, the urine analysis was normal. As for the blood analysis, we find that tetralogy patients frequently

have a polycythemia, but that after the Blalock-Taussig procedure the blood picture becomes more nearly normal. The findings in this case, though, we think represent just the upper limits of normal, and also could possibly be due to the vomiting and hemoconcentration. The white blood cell count, we feel, was high enough to indicate infection, subacute bacterial endocarditis or tissue damage. We feel that the red blood cells in the spinal fluid were merely the result of a traumatic spinal puncture, since even non-traumatic punctures can result in 50-150 cells per cu. mm. in the fluid. It is significant that the patient had no stiffness of the neck. The white blood cell count was 1,080, of which 98 per cent were polymorphonuclear leukocytes. We believe that this suggested tissue damage, rather than bacterial infection on the basis of the spinal fluid sugar, which was on the upper limit of normal. The film taken by portable x-ray suggests that the earlier clinical impression of left heart border at the anterior axillary line was incorrect.

We feel that further blood culture studies should have been done, in view of the findings of Staphylococcus epidermidis on one culture. We suspect that the single positive culture was due to a contaminant, but we should like to point out that Staphylococcus can produce a clinical picture indistinguishable from that of subacute bacterial endocarditis.

We are told that the fluid intake was adequate for maintenance therapy but that the urine output was not measured. Antibiotic therapy was instituted in much the same fashion as it is in subacute bacterial endocarditis or, sometimes, in cerebrovascular accident. The normal spinal fluid studies one week later may have been a result either of the antibiotic therapy or of the passage of time. The x-ray findings on the seventh day after admission showed right lower lobe emphysema. That may have been due to the aspiration of secretions or vomitus that the protocol mentions as having produced a ball-valve obstruction in the right lower lobe bronchus. On the seventh day, the patient developed rapid and labored breathing, his pulse rate quickened, his neck veins distended, and atrial flutter was demonstrated on an electrocardiogram. These findings, we take to have been evidence of cardiac failure, possibly renal failure, and also possibly pulmonary infarct. We can't help wondering what effect adequate intake and output measurements might have had on the treatment and, in turn, on the course of this patient's illness.

Our conclusion, then, is that this patient with tetralogy of Fallot developed a subacute bacterial endocarditis with multiple emboli involving the brain stem. Further, we think that death followed cardiac failure, with possible renal failure and possible pulmonary infarct.

Dr. Jacqueline A. Noonan, Pediatrics: I've thought I'd spend most of my time in discussing the neurological complications that can be expected in congenital heart disease, since this boy quite definitely had congenital heart disease, which doesn't seem to be very much of a problem at the present time.

There is no need to go over the protocol in detail once more. He did have a tetralogy of Fallot, and it was operated upon by a Blalock procedure. The operation apparently was successful, and he was able to work well afterward, to go to school and to do heavy farm tasks. Apparently the result was good, and it lasted for 14 years. These figures suggest that our patient was one of the first to be subjected to the Blalock procedure.

He had been doing fine, as far as we can tell. He had had a little cold about one week before his admission here, without fever, and two months earlier he had had some teeth filled, but none were extracted. Suddenly, while shovelling corn, he experienced sudden loss of vision, and then staggered about and turned blue all over. I think we could talk in some detail about the causes of sudden blindness, but I'm inclined to think that this patient's blindness was just part of an intracranial catastrophe—that he lost his vision, was confused and weak, and perhaps even convulsed. Convulsion hasn't been mentioned in the protocol, but we are told that he staggered around and turned blue all over. From the protocol we can't learn whether someone actually saw him stagger, or whether it occurred before anyone noticed his distress. In any event, his turning blue would suggest either that he had had some convulsive seizure, with loss of respiration for a few moments, or that he actually aspirated some secretions or vomitus at that point. After this episode of apparent cyanosis, he was able to walk with help and was taken to the hospital. There, he improved following oxygen therapy to the extent of being able to talk and to distinguish light.

There was no evidence that his problem was an acute congestive failure. He was not dyspneic, he was not in shock, and an hour later he suddenly became quite ill again. So this was a sudden onset of neurologic disturbance that ultimately resulted in death, and I think we should discuss briefly what kind of neurologic problems are common in children or adults with congenital heart disease.

Actually, neurologic complications of congenital heart disease are quite frequent. There hasn't been very much written as to the exact incidence, but there have been a number of papers written by Tyler,[1-3] who reviewed the cases at Baltimore. I think he found a 25 per cent incidence of various kinds of neurologic problems in a large group of patients with congenital heart disease. These were primarily cyanotic children, a great majority of whom had tetralogy of Fallot.

One of the more common neurologic difficulties

is a loss of consciousness or a convulsion. These so-called hypoxic spells resulting in loss of consciousness and sometimes convulsions occur in tetralogy of Fallot. Such an occurrence is most unusual in a young man like this, who at 19 years of age probably had a fairly normal saturation as a result of his operative procedure. Most of the loss-of-consciousness or hypoxic spells occur in infancy, and certainly in children under the age of three years. The spells seem related primarily to low oxygen saturation, and primarily to low oxygen content. That is, the susceptible patients are those who have a relative iron deficiency anemia and who aren't provided a high enough oxygen content by the compensatory mechanism of polycythemia. This isn't true of later complications. Most of the children who have a loss of consciousness have saturations below 60 per cent. In fact, none occur with a saturation above that figure. As the saturation falls below 40 per cent—to 30 and 20 per cent, as it does in some children—the spells are quite common. I mention this as a very common cause of neurologic disturbance in the patients with tetralogy of Fallot, but I don't think we need to consider it seriously as the cause of this young man's difficulty.

The next group of conditions could be classed as cerebral vascular accidents. Again there probably are three types. One is cerebral thrombosis. This, again, is primarily a complication of children under two years of age, among whom hypoxia seems to be a primary cause. It occurs in children with low saturations and low oxygen contents. These thromboses are primarily arterial, although sometimes venous thromboses occur. It is often difficult to know where the thrombosis is, for at postmortem the whole brain is often infarcted. Interestingly enough, these children seldom die from cerebral thrombosis. Permanent brain damage with persistent hemiplegia is common, but some seem to recover without detectable neurologic defect. Cerebral thrombosis also occurs in the polycythemic patient. As I have said, this is not a problem, particularly in the infant group where the polycythemia doesn't relate particularly well to the thrombosis. But in young people between 15 and 20 years of age, and in older people having red blood counts above 8,000,000, the problem of cerebral thrombosis becomes important. I think we can exclude this boy from this possibility. His hemoglobin was 15 Gm., which is a little higher than normal, and his hematocrit was 55 per cent, but certainly not in the critical range.

Then we can talk about cerebral hemorrhage. This is another complication that isn't primarily a complication of tetralogy of Fallot, but cerebral hemorrhages—particularly ruptured aneurysms—have been recorded with increasing frequency in children or adults with coarctation of the aorta. This boy did not have that type of lesion, and certainly the cerebrospinal fluid findings weren't very consistent with a cerebral hemorrhage.

Next we come to emboli. There are a number of causes for emboli. They may result, certainly, from bacterial endocarditis, and this possibility has been discussed in some detail. Other emboli may occur, particularly with arteriosclerotic plaques which have been known to occur in patients with coarctation of the aorta. Again, I think perhaps we must consider bacterial endocarditis in this patient as a cause of an embolic phenomenon, but I really don't think that it is the etiology. I'll discuss this point in a little more detail later.

Another possibility that we must consider is a frequent neurologic complication in cyanotic patients, particularly in ones with tetralogy of Fallot. That lesion is a brain abscess. It, as you know, is not a very frequent finding, but about 10 per cent of all brain abscesses do occur in patients with congenital heart disease, primarily of the cyanotic type. The over-all incidence is really not known. It varies in different series from between one and seven per cent, but the figure becomes more significant in autopsies of older patients with cyanotic heart disease.

Now, let's decide that this patient had a neurologic complication and that he had one of those that I have discussed. I'd like to say at this point that I think this patient had a brain abscess, and I shall go on to explain why I am of that opinion and why I have ruled out some of the other possibilities. He had a sudden onset, but that fact doesn't help us very much since any of these conditions can appear suddenly. Now, typically a brain abscess doesn't suddenly present itself by causing blindness and loss of consciousness, but often the initial symptoms of a brain abscess aren't recognized. This boy had had a cold without fever during the previous week. There was no history of headache, though one would expect it in a patient with an abscess. Very often, particularly in cases of brain abscess following heart disease, a really good history of the precipitating events isn't elicited. The patients haven't had their teeth pulled, and they haven't had their tonsils removed. They just get brain abscesses, and their histories don't indicate a good reason.

Most people feel that probably the brain abscess is secondary to infected emboli, for in patients with right-to-left shunt, the lungs are bypassed and this very good filtering system for the body doesn't clear the transient bacteremia that may occur from such a simple stress as chewing on beefsteak. In any event, this boy had a sudden catastrophe. At the beginning, he began to improve. He was able to talk and to distinguish light from dark, but very soon thereafter he became less responsive, thrashed about wildly, vomited several times, became unresponsive and developed decerebrate rigidity. He also became febrile.

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References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

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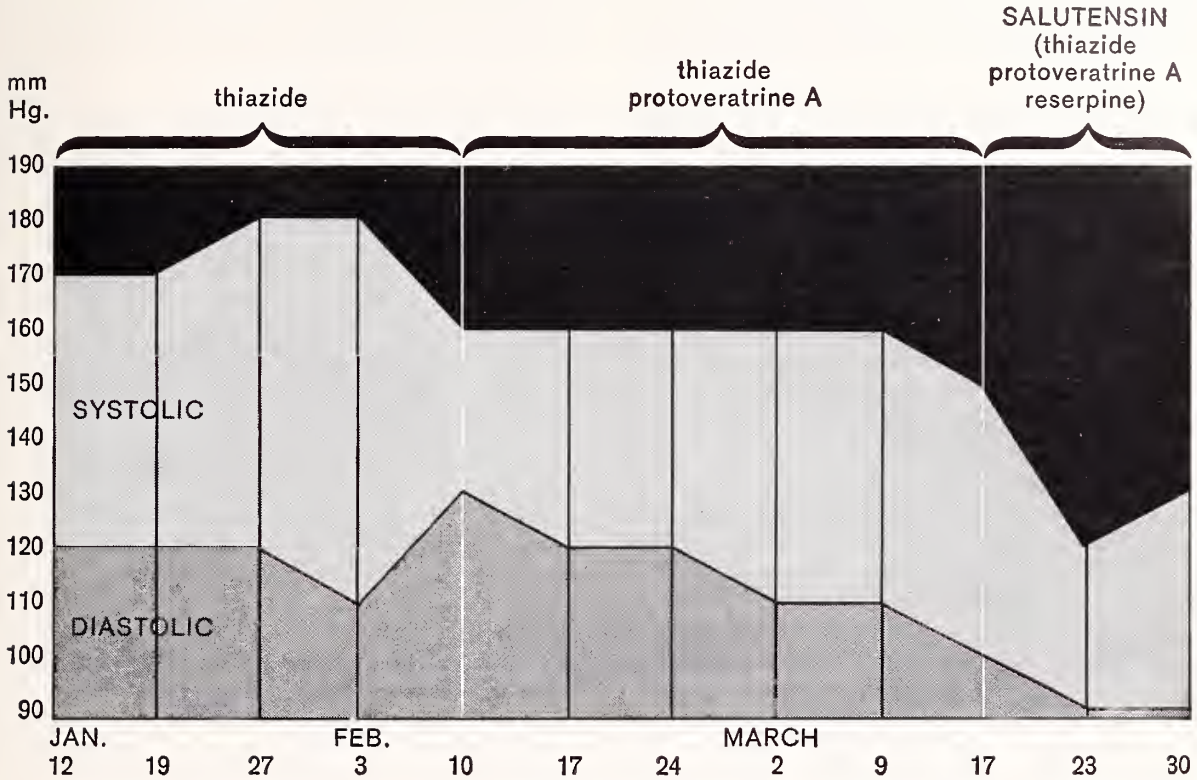
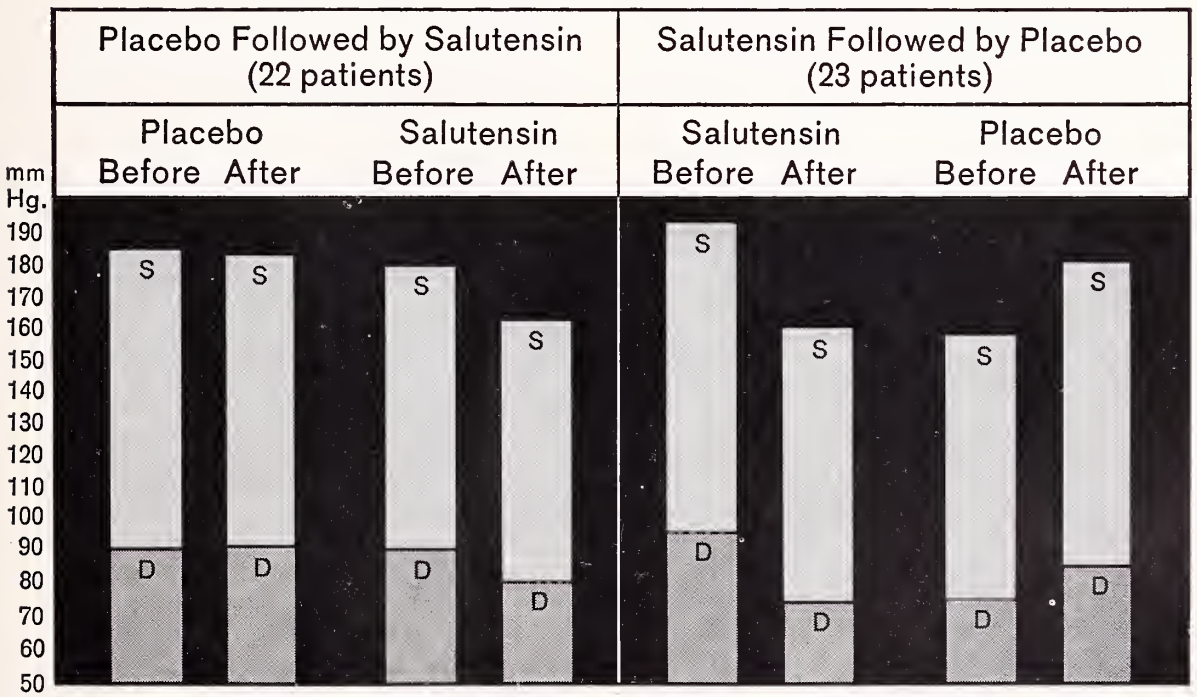
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

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We don't know much about the lumbar puncture performed at the other hospital, but we do know that when he got here he was extremely sick, and had high fever. A repeat lumbar puncture here revealed that there were indeed 1,080 white blood cells per cubic millimeter, 98 per cent of which were polymorphonuclear leukocytes. Now in the ordinary brain abscess, one may find a completely normal spinal fluid. However, if a patient with a brain abscess develops any leak into the subarachnoid space, or a rupture into the ventricle itself as may have happened in this patient, one would expect to find white blood cells in the spinal fluid. Such a patient, with evidence of infection, could be expected to have a stiff neck, and it's quite possible that this boy had that symptom, but was sick enough and had enough neurologic findings so that it might not have been apparent. In any case, he did have a great many white cells, mainly polymorphonuclear leukocytes. The Pandy reaction was positive, he did have an increased protein, and his sugar was normal. I think these findings indicate that he had an abscess rather than an acute bacterial infection. It probably was a chronic lesion, rather than a particularly infectious one, for many of these abscesses are actually sterile at the time they are drained.

The patient had an acute inflammatory response in his cerebrospinal fluid. The pressure, interestingly enough, was normal. An increased cerebrospinal fluid pressure is expected, though not always present, in brain abscess cases. Actually, in my experience with brain abscesses, perfectly normal spinal fluid pressures and even fluids occur, and it isn't until a catastrophe like this takes place that the diagnosis becomes obvious.

The electrocardiogram at the beginning showed what one would expect in a patient with tetralogy of Fallot. The patient had right ventricular hypertrophy. A chest x-ray showed a heart normal in size and shape, and this again would be expected in a tetralogy. It would mean that he had a functioning Blalock anastomosis, and that the left-to-right shunt wasn't large enough to cause left-sided strain. His heart had tolerated this shunt quite well. He had two negative blood cultures and one that grew Staphylococcus epidermidis. This is a common contaminant, and we don't know what its presence meant. It was there, but we don't know whether it was significant or not. The spinal fluid culture was negative, as is very common in brain abscess. Usually we don't get a positive spinal fluid culture.

We don't know what happened to the patient after he entered the hospital, except that he didn't improve. He stayed the same, and then be became worse and died. I think it would be interesting at this point to know what was done for him in order to make the diagnosis. Was the diagnosis made on a clinical basis, and was nothing more than antibiotics given because of his condition? Usually in brain abscess or in any of the other conditions we have talked about, an electroencephalogram is a useful test to perform, since it is usually positive in brain abscess cases and is quite often helpful in localizing the lesion. I think a patient as sick as this boy was, with his decerebrate rigidity, would have had an abnormal electroencephalogram no matter what was wrong with him, and I don't think it would have been useful in localizing the lesion. I should be interested, however, in knowing whether an electroencephalogram was performed. The other test that is helpful in diagnosing a brain abscess is a cerebral angiogram, and if it isn't helpful we sometimes have to do ventriculograms. I should be interested in knowing whether any of these tests were performed.

The patient was treated with antibiotics, and appropriately, penicillin and streptomycin were given. Penicillin is a useful drug in brain abscess because the great majority of such lesions are caused by streptococci, but any organism can cause a brain abscess, and sometimes mixed organisms do so. The patient's lumbar puncture seemed to show improvement after he had been treated with antibiotics. Then, one week after admission, he suddenly became worse, developed rapid, labored respiration, auricular flutter, congestive failure and shock unresponsive to treatment, and died. I expect that this terminal episode was a result, in a severely brain-damaged patient, of respiratory distress, on the basis of secretions or aspiration of vomitus, congestive failure and brain damage.

What could we have done for this boy? It seems that by the time he arrived at this hospital he was very sick, perhaps beyond recall. Ordinarily the treatment for brain abscess, as you know, is antibiotic therapy and then surgical drainage.

I should like to know whether any of the tests I have mentioned were performed.

Dr. Joynt: The electroencephalogram was not performed. Angiography was considered but not performed. The patient did have chest x-rays.

Dr. Noonan: Dr. Gillies, will you show us the chest x-rays, please?

Dr. Carl L. Gillies, Radiology: The heart was normal and the lung fields were clear.

Dr. William B. Bean, Internal Medicine: How do you account for the heart's moving over?

Dr. Gillies: A deeper breath probably accounts for it.

Dr. Noonan: I think the other possible complication that I'd like to mention in a little more detail, as the junior student has, is bacterial endocarditis. Actually, brain abscess secondary to infected emboli associated with bacterial endocarditis is relatively rare. My reason for choosing brain abscess over bacterial endocarditis with emboli is the fact that this boy had none of the symp-

toms that we would ascribe to bacterial endocarditis until the onset of his final illness. As you know, emboli usually occur later in the course of bacterial endocarditis. I should have expected him to have a palpable spleen, and I should have expected some petechiae. Yet all of these things might not have occurred. I think bacterial endocarditis is a possibility, and that it would have to remain a diagnosis to be considered. However, taking all in all, I should think the evidence fits better with a brain abscess which was probably in a part of the brain where it didn't cause symptoms until it grew large enough to cause the patient a lot of trouble, probably rupturing into his ventricular system, with a cerebritis, ventriculitis and cerebral edema, eventually resulting in his death.

Dr. E. S. Rahme, Neurology: What do you mean by "sterile abscess"?

Dr. Noonan: Quite often a brain abscess may become walled off by the body's defenses, and by the time one aspirates it at surgery, the brain abscess may actually be sterile to culture. Part of the explanation, of course, is that the patient has also received antibiotics. What I'm saying is that I think a lot of the trouble is due to reaction, rather than to an acute fulminating infectious process. Quite often brain abscesses don't grow any organisms, even though there may be a quart of pus in the brain. In any event, the purulent exudate must be drained.

Dr. F. J. Tutunji, resident, Internal Medicine: Where would you localize the abscess?

Dr. Noonan: I'll leave that to the neurologists.

Dr. Joynt: The clinical diagnosis made by Dr. M. W. Van Allen, who followed this case, was subacute bacterial endocarditis with a brain stem embolus. The possibility of a brain abscess was considered during the patient's hospitalization. At one point, Dr. Van Allen felt that possibly angiography might be indicated, but the patient's condition at that time was so bad that he didn't go ahead.

Dr. Jack M. Layton, Pathology: Before I take up the autopsy findings, I'd like to discuss the question that was asked about sterile abscesses. As you know, abscesses don't have to be caused by microorganisms. An abscess is a lesion removed from a body surface and consists of a central cavity filled with pus surrounded by a zone of cellulitis. An abscess may have been produced by turpentine as well as by a staphylococcus.

The chief autopsy findings were limited to the heart, brain, kidneys and spleen. A congenital heart lesion such as a tetralogy of Fallot (i.e., with an overriding aorta, membranous interventricular septal defect, pulmonary and subpulmonary stenosis, and right ventricular hypertrophy) was present, as was a patent end-to-side right subclavian artery to pulmonary artery anastomosis. This truly can be called a Blalock operation, for it was *done* by Dr. Blalock, and it was one of the first operations of that type that he performed. The pulmonic valve leaflets were largely fused to form a dome-shaped structure with a 1 mm. hole at the apex. There was also some infundibular stenosis. The interventricular septal defect was 3.5 and the right ventricle was 2.5 cm. thick—that is to say, greatly thickened. The heart was enlarged and weighed 500 Gm. On the medial leaflet of the tricuspid valve, there were polypoid, reddish-brown, granular and friable vegetations composed principally of large thrombi containing various elements of blood, masses of fibrin admixed with leukocytes and bacteria—gram-positive cocci that proved to be alpha hemolytic Streptococci when cultivated. The valve leaflet also disclosed an area of recent perforation.

Several small infarcts of recent vintage were found in the spleen, and one was found in the left kidney. As another embolic complication of the bacterial endocarditis, a septic infarct and diffuse vasculitis were found in the region of the cerebral peduncles. Thrombosis of the basilar and left posterior cerebral arteries, with infarction of the brain in the distribution of these vessels, accompanied these findings. The reaction was consistent with that which is noted between one and two weeks after infarction. There was an aneurysm at the bifurcation of the basilar artery that appeared to be an atherosclerotic aneurysm, rather than a congenital berry-type aneurysm, and may have predisposed to the thrombosis which occurred in this area.

Thus, we have a patient with tetralogy of Fallot who had been operated upon by Dr. Blalock at five years of age. He apparently had had good health for 14 years. Then he developed an infection that was followed by acute bacterial endocarditis and septic embolization, especially to the basilar and posterior cerebral arteries. This led to infarction and the central nervous system symptoms and signs which have been described. I believe that he later developed perforation of the valve leaflet, which eventuated in congestive heart failure, the immediate cause of his death.

Dr. J. M. Opitz, resident, Pediatrics: Were there infarctions in either the kidney or the spleen?

Dr. Layton: Yes, there were infarcts—several in the spleen and one in the lower pole of the left kidney—all of recent type.

Dr. John A. Gius, Surgery: Had the shunt increased in size as the child grew?

Dr. Layton: I can't tell you in an objective way, Dr. Gius. I would need to have before and after measurements. Maybe Dr. Ehrenhaft would express a view on this matter.

Dr. Ernest O. Theilen, Internal Medicine: Was it an acute endocarditis rather than a subacute endocarditis?

Dr. Layton: It was acute, even though the microorganism was an alpha hemolytic Streptococcus.

Dr. Bean: How large was the hole in the tricuspid valve?

Dr. Layton: About 5 or 6 mm., in behind the friable vegetation.

Student: Did anybody hear a murmur or a change in murmur?

Dr. Joynt: It was not noted.

Student: Could you demonstrate bacteria in the emboli?

Dr. Layton: Yes, and also in the thrombotic material in the basilar and posterior cerebral arteries and in the brain tissue around it. There was actually quite a diffuse vasculitis in that region.

Dr. Joynt: Dr. Ehrenhaft, would you like to comment on this case?

Dr. Johann L. Ehrenhaft, Surgery: I should like to tell you of an incident regarding the patient under discussion. At the time when he was a patient at University Hospitals, the phone rang in my office. Dr. Blalock was calling from Baltimore, and he asked me whether we had this patient in our hospital, and stated that he had been one of the early patients who underwent a Blalock shunt type operation at Baltimore in 1945. I told him I'd find out. Dr. Blalock told me that in all likelihood, from the story he had obtained through the patient's father, this patient must have a brain abscess. He also stated that some of the patients who had had Blalock type anastomoses had developed brain lesions.

The treatment in patients with tetralogy of Fallot has undergone considerable change. Occasionally we still use shunting procedures of the Blalock-Taussig type (subclavian to pulmonary artery anastomosis), or the Potts-Smith type of operation (pulmonary artery to descending aorta anastomosis). The so-called Brock transventricular valvulotomy was in fashion for a while several years ago, but it has more or less been discontinued for patients with tetralogy of Fallot. At the present time we have means available to carry out total correction of this congenital malformation, and for this reason, unless our hands are forced, we tend not to carry out temporary, palliative operative procedures. The morbidity and mortality in patients who have had previous shunt procedures, particularly a pulmonary artery to aorta anastomosis, are greatly increased. In some patients, correction is nearly impossible because many adhesions form around the previous operative sites, producing postoperative bleeding at the time of definitive operations in conjunction with the pump oxygenator. Our policy at the present time is to delay surgery in patients with tetralogy of Fallot as long as possible—preferably until they reach two, three or four years of age—and then carry out definitive and total correction of the congenital malformation. However, there are occasional patients in whom earlier palliative procedures become necessary because of poor growth, cerebral complications or respiratory difficulties.

Dr. Joynt: Dr. Theilen, perhaps you'd like to say a word about the treatment in this situation.

Dr. Theilen: I think we shall have to accept the fact that this patient had an acute bacterial endocarditis, but I don't think that we can rule out the possibility that his difficulties may have begun approximately two months before his illness became obvious. That is to say, it may have started at the time when he had some dental work done. It is not unusual for two or even three months to elapse between the onset of illness and its final diagnosis in someone who has a subacute bacterial endocarditis due to an alpha hemolytic Streptococcus. Such patients may be relatively asymptomatic during the early part of the disease.

The treatment of subacute bacterial endocarditis due to alpha hemolytic Streptococcus hasn't changed appreciably in the last few years. Penicillin is still the drug of choice. The amount of the drug to be given per day should be estimated on the basis of the sensitivity of the organism to it, in so far as is possible. Five or six million units per day may be quite adequate. On the other hand, organisms not inhibited by 0.1 unit of penicillin per milliliter of the patient's serum may require rather massive doses in the range of 30,000,000 units per day, sometimes in conjunction with streptomycin. A four- to six-weeks course of treatment is still generally accepted, but as you know, a few clinicians have advocated intensive treatment for as few as 10 days. Dr. Morton Hamburger[4] recently published an article in J.A.M.A. in which he reported successful treatment of subacute bacterial endocarditis with oral penicillin and parenteral streptomycin. This form of treatment was suggested only for those patients in whom the streptococcus is sensitive to 0.1 unit of penicillin per milliliter of serum, or less. Oral penicillin for treatment in this way certainly has some appeal, but I would caution against its use except in very carefully selected cases. Subacute bacterial endocarditis can be a hazardous disease despite the remarkable advances that have been made in its treatment.

Dr. Ian Maclean Smith, Internal Medicine: It has been shown that five blood cultures should be taken to rule out or to diagnose bacterial endocarditis.

Dr. Henry E. Hamilton, Internal Medicine: You have said "five cultures." Do you mean that the specimens should be taken five minutes apart, or how often?

Dr. Smith: They should be taken at least one hour apart.

Dr. Noonan: It might be worth mentioning here that in this particular patient the bacterial endocarditis was not manifested until he had suffered a serious neurologic disturbance, and I am confident that all of the penicillin in the world

wouldn't have made any difference in the outcome. He had already suffered a fatal embolic accident.

We can argue each time about whether or not the bacteremia was caused by dental fillings. I think we should go to great lengths to impress upon such patients the importance of good dental hygiene, for even though there may be no history of a trip to the dentist, it is possible that with bad teeth and deep caries, bacteremia may have occurred during the process of chewing. Thus, it is important for these people to maintain good dental hygiene at all times, and dental extractions or dental manipulations of any other kind should be covered by antibiotics. I'm sure we don't know whether this boy had antibiotic coverage when he underwent dental treatment, but he should have had.

Dr. Daniel B. Stone, Internal Medicine: Since it's difficult not to chew, do you recommend total dental extraction for these people?

Dr. Noonan: No, I don't think that we'd have to go that far, but I think that the important thing is for us to begin stressing the importance of good dental care at an early age. We talk about this each time we see children in the heart clinic, but it's another thing to get the parents and youngsters to do as we tell them. For some reason, cyanotic children tend to have unhealthy teeth, and this fact makes the problem more serious.

Finally, as Dr. Ehrenhaft has mentioned, neurologic lesions become more of a problem as these patients survive into adult life. The ones who don't die from brain abscesses die from bacterial endocarditis, and the ones who don't have Blalock operations but survive may get cerebral thrombosis secondary to marked polycythemia. A Blalock operation may give good clinical improvement, but a serious complication occurring years later may result in death. Open heart surgery allowing a complete surgical correction, we hope, will prevent such complications.

CLINICAL DIAGNOSES

Subacute bacterial endocarditis, with a brain-stem embolus.

STUDENTS' DIAGNOSES

Subacute bacterial endocarditis, with multiple emboli involving the brain stem

Cause of death: Cardiac failure, with possible renal failure and possible pulmonary infarct.

DISCUSSANT'S DIAGNOSES

Brain abscess, probably rupturing into the ventricular system, with a cerebritis, ventriculitis and cerebral edema, eventually resulting in death.

ANATOMICAL DIAGNOSES

Tetralogy of Fallot

Patent end-to-side anastomosis of right subclavian to pulmonary artery

Cardiac enlargement

Bacterial endocarditis

Multiple infected emboli in the spleen, kidney and brain stem

Thrombosis of the basilar and left posterior cerebral arteries

Terminal event: Perforation of the pulmonary valves, and congestive heart failure.

REFERENCES

1. Tyler, H. R., and Clark, D. B.: Incidence of neurological complications in congenital heart disease. AMA Arch. Neurol. & Psychiat., **77**:17-22, (Jan.) 1957.
2. Tyler, H. R., and Clark, D. B.: Cerebrovascular accidents in patients with congenital heart disease. AMA Arch. Neurol. & Psychiat., **77**:483-489, (May) 1957.
3. Tyler, H. R., and Clark, D. B.: Loss of consciousness and convulsions with congenital heart disease. AMA Arch. Neurol. & Psychiat., **79**:506-510, (May) 1958.
4. Hamburger, M., Kaplan, S., and Walker, W. F.: Subacute bacterial endocarditis caused by penicillin-sensitive streptococci: value of oral phenoxymethyl penicillin and intramuscular streptomycin. J.A.M.A., **175**:554-557, (Feb 18) 1961.

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Coming Meetings

In State

Jan. 9-10 **Obstetrics and Gynecology (S.U.I. Department of Obstetrics and Gynecology, Division of Maternal and Child Health of the State Department of Health and Iowa Obstetrical and Gynecological Society).** University Hospitals, Iowa City

Feb. 13-16 **Refresher Course for the General Practitioner (S.U.I. College of Medicine and the Iowa Chapter of the American Academy of General Practice).** University Hospitals, Iowa City

Feb. 15-16 **Sioux Valley Meeting (Sioux Valley Medical Association).** Sheraton-Martin Hotel, Sioux City

Out of State

Jan. 2-6 **Intermediate Electrocardiography for General Physicians and Specialists.** Center for Continuation Study, University of Minnesota, Minneapolis

Jan. 5 **Conference on Proctology.** Presbyterian Medical Center, San Francisco

Jan. 5 **Lederle Symposium.** Admiral Semmes Hotel, Mobile, Alabama

Jan. 7-13 **Eighth Annual General Practice Review (University of Colorado School of Medicine).** University of Colorado Medical Center, Denver

Jan. 8 **Lederle Symposium.** Hotel Lowry, St. Paul

Jan. 12-13 **Cataract Surgery Symposium.** University of Kansas College of Medicine, Kansas City, Kansas

Jan. 13 **Coronary Arteriosclerosis—Detection and Management.** Stanford University, Palo Alto, California

Jan. 13 **Skin Problems in Children.** Children's Hospital, University of California, San Francisco

Jan. 13-14 **Psychiatry in Medical Practice (University of Southern California).** San Bernardino County General Hospital

Jan. 15-18 **Internal Medicine—Today's Problems in Diagnosis and Management, and Tomorrow's Projections (American College of Physicians).** Ochsner Foundation Hospital, New Orleans

Jan. 15-19 **Forensic Pathology.** Armed Forces Institute of Pathology, Washington, D. C.

Jan. 17-19 **Seminar for Aviation Medical Examiners.** University of Kansas College of Medicine, Kansas City, Kansas

Jan. 17-19 **Tenth Postgraduate Course, Diabetes in Review: Clinical Conference (American Diabetes Association in cooperation with University of Michigan Medical School, Wayne State University College of Medicine, Wayne County Medical Society, and Michigan Diabetes Association).** Statler Hilton, Detroit (17 and 19) and University of Michigan, Ann Arbor (18)

Jan. 18-19 **Obstetrics and Gynecology (University of Nebraska in cooperation with the Division of Maternal and Child Health, Nebraska State Health Department).** Conkling Hall Postgraduate Conference Room, Omaha

Jan. 18-20 **American Society of Clinical Radiology.** Arizona Biltmore Hotel, Phoenix

Jan. 19 **American Society of Facial Plastic Surgery.** Hotel Elysee, New York City

Jan. 19-20 **A Clinic on Human Disability.** Morrison Center for Rehabilitation, University of California, San Francisco

Jan. 19-20 **Nature and Treatment of Allergic Diseases.** University of California, Los Angeles

Jan. 20 **Conference on Office Diagnosis.** Presbyterian Medical Center, San Francisco

Jan. 22-24 **First Inter-American Conference on Congenital Defects.** Statler Hotel, Los Angeles

Jan. 22-24 **Clinical Rheumatology.** Mayo Clinic, Rochester, Minnesota

Jan. 23-25 **Obstetric Problems in Private Practice.** Medical College of Georgia, Augusta

Jan. 24 **Lederle Symposium.** Sheraton-Portland Hotel, Portland, Oregon

Jan. 24-26 **Western Association of Physicians.** Golden Bough Theater, Carmel, California

Jan. 25-27 **Otolaryngology for Specialists.** Center for Continuation Study, University of Minnesota, Minneapolis

Jan. 26 **Nuclear Medicine, Part I** begins. University of Southern California, Los Angeles

Jan. 26-27 **American Society for Surgery of the Hand.** Palmer House, Chicago

Jan. 26-29 **Man and Civilization: Control of the Mind, II.** University of California, San Francisco

Jan. 27-Feb. 1 **American Academy of Orthopaedic Surgeons.** Palmer House, Chicago

Jan. 29-30 **National Research Council, Committee on Drug Addiction.** Memorial Center for Cancer and Allied Diseases, New York City

Jan. 29-31 **Twenty-sixth Annual Session of the International Medical Assembly of Southwest Texas.** Granada Hotel, San Antonio

Jan. 29-Feb. 1 **Medical Genetics (American College of Physicians).** University of Michigan Medical School, Ann Arbor

Jan. 29-Feb. 1 **American College of Surgeons, Sectional Meeting.** Statler-Hilton and The Biltmore, Los Angeles

Jan. 29-Feb. 3 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Jan. 29-Feb. 3 **Treatment of Varicose Veins.** Cook County Graduate School of Medicine, Chicago

Jan. 29-Feb. 3 **Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

Jan. 30-Feb. 1 **Underlying Mechanisms of Demyelination (Brain Research Institute).** University of California Medical Center, Los Angeles

Feb. 3 **Conference on Office Gynecology and Obstetrics.** Presbyterian Medical Center, San Francisco

Feb. 3-6 **Congress on Medical Education and Licensure.** Palmer House, Chicago

Feb. 5-6 **Cardiac Auscultation.** University of Kansas, Kansas City, Kansas

Feb. 5-7 **American Academy of Allergy.** Denver-Hilton Hotel, Denver

Feb. 5-8 **Applied Epidemiology (St. Louis County Health Department, Missouri Division of Health in cooperation with U. S. Department of Health, Education and Welfare).** St. Louis County Health Department, Clayton (St. Louis), Missouri

Feb. 7-9 **American Academy of Occupational Medicine.** Pittsburgh-Hilton Hotel, Pittsburgh

Feb. 7-10 **American College of Radiology Thirty-eighth Annual Convention.** Roosevelt Hotel, New York City

Feb. 8-10 **Symposium on Infertility (New York University Medical Center and the American Society for the Study of Sterility).** New York City

Feb. 9-10 **Dermatology.** University of California, San Francisco

Feb. 12-14 **Pediatric Neurology.** Center for Continuation Study, University of Minnesota, Minneapolis

Feb. 12-16 **Pathologic Physiology of the Blood Dyscrasias (American College of Physicians).** Washington University School of Medicine, St. Louis

Feb. 12-16 **Medical-Surgical Clinical Symposia: Endocrinology, Neurology and Neurosurgery: Neurologic Psychiatry, Medical Problems in Surgical Patients, Pulmonary Disease, Gastroenterology.** University of Kansas, Kansas City, Kansas

Feb. 13-15 **Cardiac Emergencies.** Medical College of Georgia, Augusta

Feb. 15-17 **Special Viewpoints in Pediatrics.** University of California, San Francisco

Feb. 17 **Conference on EENT.** Presbyterian Medical Center, San Francisco

Feb. 17-24 **North American Clinical Dermatologic Society.** Royal Hawaiian Hotel, Honolulu

Feb. 17-24 **Second Postgraduate Seminar, International Medical-Legal Society.** Princess Kauilani Hotel, Honolulu

Feb. 19-21 **Radiology and Radioactive Isotopes.** University of Kansas, Kansas City, Kansas

Feb. 19-23 **Symposia on Challenging Medical Problems (American College of Physicians).** Baylor University College of Medicine, Houston

Feb. 19-Mar. 2 **Surgical Technique.** Cook County Graduate School of Medicine, Chicago

(Continued on page xxxv)

HAPPY NEW YEAR

Happy New Year in 1962! May it bring peace and tranquility to a troubled world. May it be filled with joy for you and yours.

You will make the same old resolutions you have made in past years, and somehow find that a busy practice interferes with the fulfillment of many of your goals. But there are two resolutions that you certainly should fulfill—to spend more time with your wife and children, and to give more consideration to your own health. Think about those objectives and do something about achieving them. *Tempus fugit!*

A TIME AND A PLACE

An excerpt from a paper* by William S. Middleton bears repetition: "Certain physicians are splendid raconteurs. To these chosen few should be reserved the privilege of story-telling in medical meetings. The set stories, particularly if off-color, lend nothing to the dignity of our sessions. In many instances, they detract immeasurably from the effectiveness of a scientific paper. A professional audience, although superficially amused by such diversions, would elect other performers and platforms of entertainment other than the scientific sessions."

Dr. Middleton's words reflect the feelings of the vast majority of physicians, and bring to mind,

To everything there is a season, and a time to every purpose under the heaven;

A time to be born, and a time to die; a time to plant and a time to pick up that which is planted;

A time to kill, and a time to heal; a time to break down, and a time to build up;

A time to weep, and a time to laugh; a time to mourn, and a time to dance. . . .

* Middleton, W. S.: Unaccustomed as I am . . ., J.A.M.A., 178:308-311, (Oct. 21) 1961.

INDUCTION OF LABOR

A recent report by Fields,* of the University of Pennsylvania, discusses the experience with induction of labor at the University Hospital from January, 1950, through December, 1959, and emphasizes the contraindications and the hazards of such procedures. Elective induction was performed on 3,645 patients, representing 14.4 per cent of 25,327 deliveries. During the same period, 494 pregnancies (1.9 per cent) were terminated by induction for either medical or obstetrical indications.

Analysis of the results of elective induction demonstrated that the technic was safe and successful, but certain complications and hazards were encountered. Uterine spasm, fetal distress, postpartum hemorrhage, prolapsed cord, premature separation of the placenta and delivery of infants weighing less than 2,500 Gm. constituted the serious complications of the procedure. Seven fetal deaths resulted, though only one of them could be ascribed to the method.

Greater difficulty had been encountered in the patients in whom obstetric or metabolic reasons accounted for the induction of labor. The same complications occurred as in the patients with elective induction, but in considerably greater proportions. The fetal mortality consisted of five intrapartum and seven neonatal deaths, and the five intrapartum deaths were regarded as preventable. One patient had developed uterine rupture, which was attributed to faulty technic.

The fetal mortalities from elective induction and from cesarean section were compared, and it was concluded that cesarean section is preferable for local obstetric indications such as placenta previa, abruptio placenta and fetal distress. Induction and delivery by the vaginal route appear adequately to meet the systemic indications for termination, such as toxemia, Rh sensitivity and postmaturity.

The author emphasized that every aspect of induction of labor, both elective and indicated, has certain dangers—selection of the patient, amniotomy and oxytocin administration. No patient who expresses any objection to the elective induction or manifests any fear of the consequences should be persuaded to acquiesce. The delivery of a premature infant results in increased morbidity and a greater chance of mortality. If the cervix is not ripe for delivery, induction may have serious consequences. When termination of pregnancy is contemplated, the choice between induction of labor and cesarean section must be weighed. Many of these patients are not at term, and a rigid cervix adds to the hazards of induction. An unwise selection of a candidate for induction may bring about some unfortunate sequelae such as fetal and maternal injury. Amniotomy is not without danger to the mother and infant, and

* Fields, H.: Hazards and contradictions to induction of labor. SURG., GYNEC. & OBST., 113:497-500, (Oct.) 1961.

carries with it a risk of infection and of displacement of the presenting part, with resultant malposition, prolapsed cord and prolonged labor.

The technic of induction consists of the continuous intravenous administration of a dilute solution of oxytocin, followed by amniotomy after the cervix has dilated enough to make the membranes readily accessible. Each uterus reacts differently to oxytocin, and constant care is required in its administration. The amount of oxytocin infused must be adjusted to the uterine response, and only a thoroughly experienced person can judge the reaction. Excessive amounts result in uterine spasm, and serious consequences to the mother and the fetus. The use of synthetic oxytocin precludes the danger of anaphylactoid shock. Prevention of serious consequences is dependent upon constant, skilled observation.

The major contraindications to induction are cephalopelvic disproportion and inadequate personnel and facilities. In elective induction, the specific objections are fear and reluctance on the part of the patient, a fetus weighing less than 2,500 Gm., and an unripe cervix. In indicated induction, the specific contraindications are the need for immediate termination, the presence of fetal distress, moderate or severe abruptio placenta, and partial or central placenta previa.

Dr. Fields concludes: "At present, induction of labor should be practiced only by experienced obstetricians in institutions with adequate facilities and personnel. Every precaution must be taken to avoid the hazards of induction, and of course all the contraindications should be respected."

PROPHYLAXIS FOR RHEUMATIC FEVER

Despite the fact that rheumatic fever can be prevented by adequate penicillin therapy of streptococcal respiratory infections, patients with acute rheumatic fever continue to be seen. Impressed by that fact, Czoniczer, Lees and Massell reviewed the case histories of 105 patients recently admitted to the House of the Good Shepherd, in Boston,* to determine the reasons for the continuing occurrence of the disease, to ascertain the characteristic symptoms of streptococcal infections, and to make some recommendations for improving rheumatic-fever prophylaxis.

The 105 patients were selected on the basis of specific criteria: an unequivocal diagnosis of rheumatic fever; no history of previous rheumatic fever; the presence of a high antistreptolysin-O titer; an interval of six to 28 days between the symptoms of streptococcal infection and the onset of rheumatic fever in those patients in whom an antecedent streptococcal infection could be identified in the histories.

Reviewing the 105 cases revealed that not a single one had received adequate penicillin therapy at the time of the antecedent streptococcal infection. It was assumed that lack of proper treatment was an adequate explanation for the development of rheumatic fever in these children. Sixty-nine of the group had not been given therapy at the time of the streptococcal infection because a physician had not been called to see the patient. Among those 69, the symptoms had been severe in 15, mild in 38 and subclinical in 16. The remaining 36 patients had been seen by physicians. In 14 of them an improper diagnosis had been made, the doctors having decided in most of these instances that the ailment was of viral origin. In 22 patients, penicillin either was not given or was given in inadequate amounts, despite a correct diagnosis of streptococcal infection.

As for symptoms and signs, in the 89 children who had had clinically evident streptococcal infection, 58 had had sore throat and fever, 17 had had fever without sore throat, 4 had had sore throat without fever, and 10 had had respiratory symptoms without sore throat or fever. If fever had been used as a clue to streptococcal infection, 70 per cent of all 105 patients would have been suspected, or 84 per cent of those with symptoms.

In consequence of their study, the authors recommend that whenever a child is ill in any way, his mother should take his temperature four times daily. If definite fever is present (a temperature of 101° F. or more by mouth), a physician should be consulted. Unless the cause of the fever is obvious, a throat culture should be taken. If the culture is found to be strongly positive for beta hemolytic streptococci, it is likely that the illness is due to a streptococcal infection. To a child with definite fever and a strongly positive throat culture, penicillin should be administered in adequate dosage. An adequate dose consists of a single injection of 1,200,000 units of benzathine penicillin, or of 400,000 units of oral penicillin administered three times a day for 10 days.

It is apparent that parents must be carefully instructed concerning the indications for calling a doctor about an ill child. Physicians should culture the throats of children with a febrile illness for which the precise cause is not apparent. This is a frequently neglected procedure. It is a simple matter to procure material from the throat with an applicator, to place the applicator in a sterile tube, and to send it to the nearest laboratory for culture. Just a single injection of procaine penicillin, or the administration of oral penicillin for two or three days relieves symptoms and gives a false sense of security. It will not prevent the development of rheumatic fever or of acute hemorrhagic nephritis!

* Czoniczer, G., Lees, M., and Massell, B. F.: Streptococcal infection: need for improved recognition and treatment for prevention of rheumatic fever. NEW ENGLAND J. MED., 265:951-952, (Nov.) 1961.

ISONIAZID v. THE COMPLICATIONS OF TUBERCULOSIS

A report has recently been made by Mount and Ferebee* on a study by the U. S. Public Health Service which tested the value of isoniazid in the prevention of meningitis and other complications in children with primary tuberculosis. The study was made over a three-year period by a number of pediatricians throughout this country and in San Juan, Toronto and Mexico City.

From the start of the study in January, 1955, to the date of the report, June, 1957, a total of 2,750 children had entered the study group. To be eligible, the child had to be asymptomatic, and any youngster requiring treatment of the disease was excluded. Children under three years of age were admitted with a reaction of 5 mm. of induration to the intermediate dose of P.P.D. Children three years of age or older had to have roentgenologic evidence of primary tuberculosis in addition to a positive tuberculin test. One half of the group, selected at random, were given isoniazid, and the other half were given placebos that were identical in appearance to the isoniazid pills. The bottles were identified by number only. Isoniazid was given in daily doses of 4 to 6 mg./Kg. of body weight. An equivalent number of placebos were given to the controls. Neither the children and their parents, nor the clinic staff knew which children were receiving the isoniazid and which ones were receiving the inert substance.

When a child entered the test, he received a physical examination, a chest roentgenogram and a tuberculin test. Each month during the first year he returned to the clinic for another supply of pills and was given a physical examination for signs of progression of the disease or complications. Roentgenograms of the chest were carried out on each child after one, three, six and twelve months. At the end of a year, he was given a physical examination and a tuberculin test, and the medication was discontinued. During the next two years, each youngster made clinic visits several times a year, and x-ray studies and tuberculin tests were repeated yearly. Follow-up plans include yearly inquiries into the health of each child, and x-ray examinations are to be carried out at 12, 14 and 16 years of age.

During the three years of observation, 137 children were treated for possible tuberculous complications, and in addition to this group, films from 100 children were judged to show roentgenologic evidence of unfavorable changes during the first year of observation. From this total of 237 children reviewed by the panel of participating physicians, 153 were judged to have shown unfavorable changes definitely or possibly associated with their tuberculosis. In 84 children there were no unfavorable tuberculous changes. In the isoniazid-treated group, 29 children showed increases in the sizes of the parenchymal lesion, in contrast with 43 in the group that had received placebos. One child in each group had a possible cavity in an area of increased density. In six children in each group, adverse pulmonary changes occurred that were regarded as of doubtful tuberculous origin.

During the first year of the study, the difference in the development of extrapulmonary complications in the 1,394 children receiving isoniazid and the 1,356 children receiving placebos was striking. Only two in the treated group developed complications. In one child a cervical spine lesion was recognized four months after he began taking isoniazid. The second child developed a minimal pleural effusion with an accompanying parenchymal density after a month of isoniazid. In contrast, 31 children in the group receiving placebos developed definite complications—six developed skeletal lesions; nine effusions; three clinical illness; one tonsillitis; and three conjunctivitis. Doubtful complications occurred in six additional children in each of the two groups.

An analysis of the first-year results demonstrated that the risk of complications is contingent upon age and upon the extent of the roentgenographic involvement. Risk increases with the extent of involvement as demonstrated by roentgenogram, and decreases with age. For all children less than one year of age, the risk of complications was high—16 per 1,000 of those with normal roentgenograms, and 182 per 1,000 of those with parenchymal involvement. For children from one through six years of age, the risk was substantial only if x-ray demonstrated parenchymal involvement.

To date, all children have had two years of observation after the year of treatment. In four children who had received isoniazid and in eight who had received placebos, extrapulmonary or reinfection tuberculosis developed. From this experience, it was deduced that isoniazid not merely suppresses complications, leaving the risk of their emerging after the cessation of medication, but in fact prevents tuberculous complications.

As a result of this carefully controlled study, it has been concluded that a high proportion of children with primary tuberculosis can be induced to take medication regularly for a year; that isoniazid in a dosage of 4 to 6 mg./day is safe for prolonged administration; that the drug appears to reduce the frequency of adverse pulmonary changes in children with primary tuberculosis; and that isoniazid definitely prevents extrapulmonary complications.

* Mount, F. W., and Ferebee, S. H.: Preventive effect of isoniazid in treatment of primary tuberculosis in children. NEW ENGLAND J. MED., 265:713-721, (Oct. 12) 1961.

MORES OF TEENAGERS

In a discussion of teen-age morals in England, Alex Comfort[1] says, "The over-all incidence of illegitimate births and premaritally-conceived children has remained extremely stable since the 1930's, but the distribution has changed to younger age groups, in step with the steady secular fall in the age of physical puberty." An editorial in the BRITISH MEDICAL JOURNAL points out that in Norway and Sweden in 1840, the average girl reached the menarche at the age of 17 years, whereas at present the average girl reaches it at about 13½ years. In Britain a similar pattern has been noted. Indeed the trend is continuing, for in the last two London County Council surveys, conducted at five-year intervals, there has been an average difference of exactly two months. It was concluded that the reduction in the age of the menarche has been continuous at about four months per decade, or roughly one year per generation. The phenomenon has been attributed to improvements in nutrition and to less serious disease.

Regarding venereal disease in immigrants and adolescents, another BRITISH MEDICAL JOURNAL editorial[3] concludes: "It seems likely that an increase in venereal disease in adolescents—resulting, presumably, from greater promiscuity—has contributed to the larger number of cases coming to the clinics in recent years."

In his discussion of teen-age morals, Comfort[1] states: "Modern youngsters not only develop earlier; they win prizes or prison sentences, go to the ballet, take part in political meetings, and engage in sexual intercourse earlier. The magnitude of the shift is such that interests and problems of the sixth-former today are roughly those of the undergraduate of yesterday. . . . Some part of the shift may be socially rather than physiologically determined, if only to the extent that slower developers will be carried along faster; the influence of books, television and other war-horses, which carry would-be censors to battle, may not be real. The point of interest is that it is probably no greater in altering the conduct of the group than that of their elders. . . . The age of consent has not advanced with earlier puberty." The author points out that there has been no cataclysmic change in morals between the present generation and those immediately before them, and in so far as there is a teen-age morals problem it is a reflection of the earlier physical maturity of young people, and their confrontation with moral choices at an earlier age. He concludes: "There is unfortunately only one way of making sure that the mature bodies of our children contain the emotionally mature minds which are needed for the painless management of personal relations, not only sexual ones, and that is by our own example. . . . It would be a gain in frankness and honesty at least, one might think, if in the future the gap between Sunday pretenses and weekly reality could be narrowed."

A contribution by Gallagher[4] should be brought to the attention of all parents with the greatest of emphasis: "The answer to the question 'What can be done about adolescents?' lies primarily in what we can do about little children. It is the very early years which count most. If they are good ones, the chances that adolescence will go smoothly are significantly increased. . . . If in the first year parents, intuitively or through their doctor's or others' counseling, see to it that the baby's needs are gratified; that in the next two years he can express warm feelings, develop spontaneity and learn there are limits; that in the years before he goes off to school he can experience the feeling of integrity in his family and from this learn, by good example, those interpersonal relationships which are the basis for good sexual adjustment—then there is less likelihood that in adolescence he will be resentful, demanding, suspicious, unable to accept authority, overly anxious about sex or about becoming an adult, or need to seek recognition in socially inappropriate ways."

Parents have a tremendous responsibility to equip their children for wholesome personal relationships at adolescence and in the subsequent years. The average parent is crying for help as he attempts to do a good job of child-rearing. The family physician can and should offer valuable counsel to assure the accomplishment of that goal. Moralizing with the youngster who is already a teenager, or attempting to restrain him or her by instilling fear, is futile. Instead, strength, discipline, idealism, character must be woven into the fabric of the youngster long before the critical adolescent period.

REFERENCES

1. Comfort, A.: Teenage morals. Lancet, **1**:1335-1336, (June 17) 1961.
2. Editorial: "Early Maturing and Larger Children." British M.J., **2**:502, (Aug. 19) 1961.
3. Editorial: "Venereal Disease in Immigrants and Adolescents." British M.J., **2**:224-225, (July 22) 1961.
4. Gallagher, J. R.: Doctor and other factors in adolescents' health and disease. J. Pediatrics, **59**:752-755, (Nov.) 1961.

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Cooperation between medicine and labor to assure the best possible health care for the American people

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IMS ANNUAL MEETING

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President's Page

Your president-elect, Dr. G. H. Scanlon, and I recently had a very frank talk with Mr. Lawrence Putney, chairman of the State Board of Social Welfare, for the purpose of exchanging views regarding the vendor payment programs. The importance of effective auditing by committees of local physicians dominated our discussion.

The Iowa Medical Society has always favored local control of these programs, and to a great extent physicians can have this local control if they will exercise it through committees in their respective counties.

I hope that all county medical societies participating in the vendor payment programs will determine at once whether or not their local review committees are functioning properly, and if not, that they will take the necessary steps to strengthen them.

President

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

PROCEEDINGS OF THE THIRD CONFERENCE ON CARDIOVASCULAR DISEASES, ed. by *Robert G. Siekert*, M.D., and *Jack P. Whisnant*, M.D. (New York City, Grune & Stratton, Inc., 1961. $5.75).

BIOLOGICAL ACTIVITY OF THE LEUCOCYTE (CIBA FOUNDATION STUDY GROUP NO. 10), ed. by *G. E. W. Wolstenholme*, M.B., and *Maeve O'Connor*, B.A. (Boston, Little, Brown and Company, 1961. $2.50).

PROGESTERONE AND THE DEFENSE MECHANISM OF PREGNANCY (CIBA FOUNDATION STUDY GROUP NO. 9), ed. by *G. E. W. Wolstenholme*, M.B., and *Margaret P. Cameron*, M.A. (Boston, Little, Brown and Company, 1961. $2.50).

BOOK REVIEWS

WILLIAMS OBSTETRICS, TWELFTH EDITION, by *Nicholson J. Eastman*, M.D., and *Louis M. Hellman*, M.D. (New York City, Appleton-Century-Crofts, 1961. $16.00).

This twelfth edition of what has been for many American physicians the "bible" of obstetrics is, indeed, a monumental work. The two authors have covered the broad field of obstetrics in all its aspects, both from the standpoint of the normal and the abnormal, and the end result is a reference book admirably suited to the needs of the medical student and of the practicing physician as well.

The first portion of the book is devoted to the anatomy and physiology of reproduction, and to the management of normal pregnancy, as well as to the physiology and conduct of normal labor. Throughout this portion, however, the authors constantly relate the theoretical knowledge of this subject to its clinical application. The chapter on the psychiatric aspects of childbearing is lucidly done, and any physician handling parturient women would derive much benefit from it.

The use of the x-ray in pelvic mensuration is discussed very frankly in the light of possible damage due to excess radiation, and good, clear-cut indications are given for its use. This presentation no doubt will tend to halt the indiscriminate use of the x-ray that has been prevalent in some quarters during the past decade or more.

The second portion of the book covers thoroughly the abnormalities of pregnancy, labor and the puerperium, as related both to the mother and to the newborn. In this portion, the practical side is particularly stressed, and the busy practitioner will find this a ready source of answers for many of his perplexing clinical problems.

One is particularly impressed with the frankness with which the authors have discussed postpartum hemorrhage, particularly as related to uterine atony. They are very realistic in their approach to this serious problem, and recommend hysterectomy not as a last, desperate resort, but as the treatment of choice when other reasonable measures have failed and before the patient is in extremis. They wisely point out that "too little, too late" can be fatal.

The authors have drawn freely upon the works of other writers, and have given due credit to them. The bibliography at the end of each chapter is most voluminous and complete.

Anyone who deals with pregnancy, be he medical student, research scientist or clinician, will find this book most useful.—*C. W. Seibert*, M.D.

SOMATIC STABILITY IN THE NEWLY BORN, ed. by *G. E. W. Wolstenholme*, M.B., and *Maeve O'Connor*, B.A. (Boston, Little, Brown and Company, 1961. $10.00).

This volume is a compilation of papers presented at a symposium on the newly born by an imposing array of world authorities. The majority of the papers deal with work in animals, and are profoundly scientific. However, many of the findings can be translated into data that are applicable to the human species, and the papers that deal with human beings are likewise outstanding.

This isn't a volume that the average practitioner would read from the standpoint of finding ways to improve his clinical care of children. Rather, it is a book that will appeal to medical men who are especially interested in basic science and who wish explanations for some of the problems that arise in the newborn. It is to be used more as a reference book than as a clinical text.—*Charles J. Baker*, M.D.

KEY AND CONWELL'S MANAGEMENT OF FRACTURES, DISLOCATIONS AND SPRAINS, SEVENTH EDITION, by *Fred C. Reynolds*, M.D., and *H. Earle Conwell*, M.D. (St. Louis, The C. V. Mosby Company, 1961. $27.00).

This is a revision of one of the standard texts in its field by Dr. Fred C. Reynolds, Dr. Key's successor at Washington University School of Medicine.

The book contains two sections, the first being on principles and general aspects, and the second on the diagnosis and treatment of specific injuries. The first portion consists of basic information, well worded, and kept pertinent so that the reader doesn't lose himself in extraneous material. This information should be prerequisite in any training program, and as a reference work this book should be used frequently by many physicians.

The section on diagnosis and treatment is well documented with many illustrations, and the respective chapters are limited to certain bones or joint regions.

Discussion of these is again good, with the emphasis placed, as it should be, mainly on conservative measures. Complications are also dealt with, and the management of each is outlined.

This book is excellent from the standpoints both of the student and of the doctor in training and practice. The material that it contains has been tested and accepted, and it can serve as a text and as a guide for the man who wants specific help for a particular fracture situation.

I am sure that this book will continue to be used frequently and advantageously by those who become acquainted with it.—*Donald W. Blair,* M.D.

APPRAISAL OF CURRENT CONCEPTS IN ANESTHESIOLOGY, ed. by *John Adriani,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $7.75).

According to the editor, this book is designed for the clinician, as a synthesis of the voluminous materials that have been written relative to the specialty of anesthesiology. It is not a "review article," analyzing the subject and reviewing the literature in minute detail. Rather, in a few concise pages, the highlights of the current literature on a given topic are summarized.

The book originated as part of the residency training program of the Department of Anesthesia at Charity Hospital, New Orleans. Selected topics were assigned to residents and staff members at residency meetings, and the resultant reports were originally mimeographed for use by the Charity Hospital group. Then, the papers were edited by Dr. Adriani and published in book form.

The volume contains 45 chapters, averaging about five pages each. It is of convenient, coat-pocket size, and is sturdily bound and attractively printed. Because it is easy to carry, it can be available for browsing during short "break" periods. The chapters are brief enough so that one can be read in just a few minutes.

For its stated purpose—a review of selected topics—the book can be highly recommended, and it should be of value for those who are away from academic centers and for part-time anesthesiologists.—*K. Garth Huston,* M.D.

PRACTICAL PEDIATRIC DERMATOLOGY, SECOND EDITION, by *Morris Leider,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $13.75).

The second edition of this treatise on pediatric dermatology follows the first edition after a span of six years. Major changes have been made in the discussions of the pyodermas and fungus infections. Also, the uses of new therapeutic agents have been incorporated into the discussions of such matters as staphylococcal infections and intractable infections.

The reader searching for bibliographies will be disappointed. The author states in his preface: "The fact is I found I could write enough out of my head of what I knew to be true without searching for contemporaneous authority greater than my own."

This book should serve as a useful reference work for the pediatrician and general practitioner in dealing with the dermatological problems of children.—*M. E. Alberts,* M.D.

MECHANISMS OF DISEASE: AN INTRODUCTION TO PATHOLOGY, by *Ruy Perez-Tamayo,* M.D. (Philadelphia, W. B. Saunders Company, 1961. $14.00).

This book is a translation and abridged adaptation of PRINCIPIOS DE PATHOLOGIA, which was published in Spanish in 1959. It is a scholarly yet readable, stimulating treatise in which a rather successful attempt has been made to present a survey of some of the basic mechanisms of disease. The author is professor and director of the Department of Pathology at the School of Medicine of the National University of Mexico.

Important topics which are very well reviewed are disturbances of growth and differentiation of tissues, the general pathology of connective tissues, host-parasite relations, disturbances of metabolism and nutrition, and problems of body fluids and electrolytes. Discussions of inflammation, of degenerative and regressive disturbances of cells and tissues, and of repair, regeneration and tissue transplantation are surprisingly interesting.

Finally, a good review of the general pathology of tumors has been included, encompassing discussions of their etiology, anatomy, physiology and biochemistry, their dissemination, and their diagnosis.—*R. F. Birge,* M.D.

CLINICAL OBSTETRICS, by *Benjamin Tenney,* M.D., and *Brian Little,* M.D. (Philadelphia, W. B. Saunders Company, 1961. $8.50).

It is pleasant to see a text designed for practical everyday problems and unencumbered by needless phrases. CLINICAL OBSTETRICS was written for the purpose of presenting a useful approach and method of management for use in obstetrical conditions.

Medical complications are discussed from the standpoint of physiological changes, and the resultant management is predicated upon those changes. Heart disease in pregnancy is discussed particularly clearly, and diabetes management is presented according to the standards of the Joslin Clinic. The controversial use of hormones in diabetes may have been given excess weight. The hypertensive diseases are categorized in the most practical way that I have seen. The laboratory differentiation between renal disease and toxemia is particularly valuable.

Blood incompatibilities, premature rupture of the membranes, prolonged labor, current thoughts on urinary-tract infection, and many other topics are also clearly outlined. It is interesting to note that the authors believe endocrines have no place in the management of threatened abortion, reasoning that if the patient is bleeding, damage to the pregnancy has already been done. There must have been something wrong to cause the abortion, and therefore endocrines are of no value. They feel that endocrines should be reserved for preparation for the next pregnancy, if they are to be used at all.

CLINICAL OBSTETRICS is not designed as a comprehensive text dealing with background, research findings and basic science. Rather, it fills the need for a reference work on the common clinical problems in obstetrics. The general practitioner should find it indispensable, and the specialist will find that it helps him review infrequently-seen problems.—*Michael R. Hirsch,* M.D.

Iowa Chapter of the American Academy of General Practice

A refresher course for the general practitioner will be held at University Hospitals in Iowa City, February 13-16. Twenty-seven hours of Category I credit will be allowed for this course sponsored by the Iowa Chapter of the American Academy of General Practice and the S.U.I. College of Medicine.

Registration fees are $40.00 for the complete course or $15.00 for a single day. Members of the AAGP will be charged a fee of $10.00. Luncheon tickets are included in the $40.00 fee; AAGP members may purchase them for $1.00 at the registration desk, where tickets for the Thursday evening dinner may also be bought.

Advance housing arrangements and parking permits may be obtained by writing to John A. Gius, M.D., Director of Postgraduate Medical Studies, University Hospitals, Iowa City.

This year's program, the schedule of which follows, includes motion picture clinics on several different surgical topics. The clinics will run simultaneously from 7:30 to 9:30 p.m. on Tuesday, February 13. Most of the movies shown will be films that have been produced at S.U.I., and each will be personally narrated by the faculty member who was involved in the case. Question and answer periods will follow each film. Programs listing the subjects to be covered in the film clinics will be distributed at the conference registration desk, and each physician will be given the opportunity to indicate his choice.

Narrators of the films will include Dr. L. J. DeBacker, assistant professor of anesthesiology; Dr. J. L. Ehrenhaft, professor of surgery; Dr. M. S. Lawrence, associate professor of surgery; Dr. D. M. Lierle, professor and head of otolaryngology; Dr. Russell Meyers, professor of neurosurgery; and Dr. I. V. Ponseti, professor of orthopedics.

PROGRAM

Tuesday, February 13, 1962

8:15 Registration

8:45 Welcome and Orientation
- N. B. Nelson, M.D., Dean, College of Medicine
- J. A. Gius, M.D., Director of Postgraduate Studies
- V. L. Schlaser, M.D., President, Iowa Chapter, American Academy of General Practice

SURGERY

R. T. Tidrick, M.D., Chairman

9:00 Office Treatment of Ocular Injuries
F. C. Blodi, M.D.

9:20 Early Recognition of Congenital Defects of the Lower Extremities
I. V. Ponseti, M.D.

9:40 Peripheral Arterial Occulsive Disease: What Can the Surgeon Offer
Harold Laufman, M.D., Associate Professor of Surgery and Director of Experimental Surgery, Northwestern University Medical School

10:40 Temporal Bone Surgery for Deafness: Who Can Be Helped?
J. A. Donaldson, M.D.

11:00 Question and Answer Period
- Harold Laufman, M.D.
- F. C. Blodi, M.D.
- J. A. Donaldson, M.D.
- I. V. Ponseti, M.D.

11:15 Symposium: Bladder Neck Obstruction in Childhood
- R. H. Flocks, M.D., Moderator
- B. J. Begley, M.D.
- D. Dunphy, M.D.
- C. L. Gillies, M.D.

12:30 Luncheon—Doctors' Dining Room

1:30 Short Presentations of Practical Techniques:
- Working With Small Structures—J. A. Gius, M.D.
- Mechanical Means for Reducing Chronic Lymphedema—E. E. Mason, M.D.
- The Quick Venous Cut Down—N. P. Rossi, M.D.
- The Difficult Catheterization—D. A. Culp, M.D.
- Gastric Hypothermia for Acute Upper G.I. Bleeding—R. D. Liechty, M.D.
- Field Block and Infiltration Anesthesia for Hernia Repair—J. Kyed Pedersen, M.D.
- Examination of the Sperm—R. G. Bunge, M.D.
- Emergency Tracheostomy—W. C. Huffman, M.D.

3:50 Panel Discussion With Audience Participation: How Would You Do It?
- S. E. Ziffren, M.D., Moderator
- Harold Laufman, M.D.
- D. M. Sensenig, M.D.
- R. C. Hickey, M.D.

5:00 Adjournment

EVENING MEETING

7:30-9:30 Motion picture clinics.

Wednesday, February 14, 1962

PEDIATRICS

D. Dunphy, M.D., Chairman

Seminar on Neonatal Problems

9:00 Introductory Remarks
D. Dunphy, M.D.
9:15 Neurological Examination of the Neonate
J. C. MacQueen, M.D., and H. Zellweger, M.D.
10:30 Infection in the Neonate
R. B. Kugel, M.D.
11:00 Choice of Formulas
S. J. Fomon, M.D.
11:30 Surgical Emergencies
R. T. Soper, M.D.
12:00 Question and Answer Period
12:30 Luncheon—Doctors' Dining Room
1:30 Small Group Conferences—Therapy in Pediatrics:
Exchange Transfusions in Accidental Poisonings—R. E. Carter, M.D.
Croup—Recognition and Management—J. C. Taylor, M.D.
Endocrine Emergencies in the Neonate—C. H. Read, M.D.
Immediate Therapy for Convulsions—J. C. MacQueen, M.D.

C. H. Read, M.D., Chairman

2:30 Steroids, Therapeutic Use and Hazards
R. D. Gauchat, M.D.
3:00 Common Orthopedic Problems and Their Management
M. Bonfiglio, M.D.
3:30 Question and Answer Period
4:00 Clinical Pathological Conference

Thursday, February 15, 1962

OBSTETRICS AND GYNECOLOGY

W. C. Keettel, M.D., Chairman

9:00 Dysfunctional Uterine Bleeding
C. P. Goplerud, M.D.
9:30 Office Gynecology
W. C. Keettel, M.D.
10:00 Preeclampsia, Management and Prevention
Clyde L. Randall, M.D., Professor and Head of Obstetrics and Gynecology, University of Buffalo School of Medicine, Buffalo, New York
10:45 Use of Oxytocic Drugs in Obstetrics:
Induction of Labor—W. C. Keettel, M.D.
Uterine Inertia—W. F. Howard, M.D.
Third Stage—J. P. Jacobs, M.D.
11:15 Recent Advances in Obstetrics and Gynecology:
Use of Progesterone as a Pregnancy Test—J. T. Bradbury, Sc.D.
Treatment of Chronic Trichomonas Infection—W. C. Keettel, M.D.
Oral Contraceptives—J. P. Jacobs, M.D.
Nasal Syntocin Spray—L. A. Luhman, M.D.
Simplified Postpartum Care—C. P. Goplerud, M.D.
Vaginal Cytology in Pregnancy—C. A. White, M.D.
11:45 Question and Answer Period
12:30 Luncheon—Doctors' Dining Room
1:30 Small Group Conferences:
Menopausal Problems—Clyde L. Randall, M.D.
Rational Use of Hormones—J. T. Bradbury, Sc.D.
Infertility Problems—J. P. Jacobs, M.D.
Ward Rounds—Obstetrics—W. C. Keettel, M.D.
Manikin Demonstration—Breech—C. P. Goplerud, M.D.
Rh Sensitization—C. A. White, M.D.
Abnormal Uterine Activity—W. F. Howard, M.D.

C. P. Goplerud, M.D., Chairman

2:30 Diagnosis and Management of Abnormal Presentations
Clyde L. Randall, M.D.
3:00 Endometriosis:
Symptoms—Clinical Findings—Clyde L. Randall, M.D.
Hormonal Mangement—C. A. White, M.D.
Surgical Management—C. P. Goplerud, M.D.
4:00 Obstetrical Analgesia and Anesthesia:
Paracervical Block—R. M. Pitkin, M.D.
Pudendal Block—J. P. Jacobs, M.D.
Newer Drugs—W. F. Howard, M.D.
Saddle Block—C. A. White, M.D.
6:00 Social Hour and Dinner—Elks Club, 525 E. Washington St. (Sophomore and Junior Medical Students, and the Speaker Will Be Guests of the Academy)
Speaker: Dr. James P. Cooney, New York
Vice President for Medical Affairs
American Cancer Society, Inc.
"Unproved Cancer Therapy"

Friday, February 16, 1962

MEDICINE

W. M. Kirkendall, M.D., Chairman

9:00 Clinical Masquerades of Acute Cardiac Infarction
W. B. Bean, M.D.
9:20 Diagnosis of Vascular Aging
F. M. Abboud, B.Ch.
9:40 Family Plagues of Boils
I. M. Smith, M.D.
10:10 Management of the Patient With Headaches
Adrian Ostfeld, M.D., Associate Professor of Preventive Medicine, University of Illinois College of Medicine, Chicago
10:55 Panel Discussion—Cardiogenic Shock
J W. Eckstein, M.D., Moderator
F. M. Abboud, B.Ch.
E. O. Theilen, M.D
11:55 Nutrition in Rheumatoid Arthritis
R. E. Hodges, M.D.
12:15 Rationale for Employment of Insulin and Hypoglycemic Drugs in Diabetes
R. C. Hardin, M.D.
12:30 Luncheon

1:30 Small Group Conferences:

1. The Brittle Diabetic—R. C. Hardin, M.D., Chairman; D. B. Stone, D.P.M.; R. E. Cech, M.D.
2. Problems in Treatment of Patients With Hypertension and Renal Diseases—W. M. Kirkendall, M.D., Chairman; H. L. Nash, M.D.; M. L. Armstrong, M.D.
3. Recent Devolpments in Prevention and Treatment of Coronary Artery Heart Disease—W. E. Connor, M.D., Chairman; J. C. Hoak, M.D.
4. Clinical Recognition of Cardiac Valvular Lesions (Cardioscope Demonstration)—E. O. Theilen, M.D., Chairman; June M. Fisher, M.D.; J. W. Evans, M.D.
5. Diagnosis of Anemia—W. M. Fowler, M.D., Chairman; Helen Vodopick, M.D.; D. T. Kaung, M.D.; J. M. McMahon, M.D.
6. Respiratory Tract Diseases—G. N. Bedell, M.D., Chairman; P. M. Seebohm, M.D.; I. Horowitz, M.D.

R. D. Eckhardt, M.D., Chairman

2:30 Panel Discussion—Psyche, Soma and the Gut
D. B. Stone, D.P.M., Chairman
J. Clancy, Ch.B.
J. A. Clifton, M.D.
Adrian Ostfeld, M.D.

3:30 Cervical Spondylosis and Myelopathy
A. L. Sahs, M.D.

4:00 (To be inserted—Dermatology)
R. G. Carney, M.D.

4:20 (To be inserted—Psychiatry)
R. L. Jenkins, M.D.

"REPORT FROM EUROPE"

By ARTHUR VEYSEY, chief of CHICAGO TRIBUNE'S London Bureau*

Britain's socialized medicine is due for reform but is unlikely to get it.

Almost all medical bills are sent to the treasury for payment and so long as that situation prevails, most Britons will be content with almost any kind of medical care.

Very few Britons have continued to meet their own bills since the postwar socialist government offered to pay. About a million Britons are covered by hospital insurance policies but the amount involved is only about 15 million dollars a year of a total national medical bill approaching 3 billion dollars. (The American figure is about 30 billion dollars, of which three-fourths is paid by individuals directly or through health insurance.)

In Britain, government medicine is by far the most popular of all social services. Few persons want it ended, although many want changes. The service is popular not because it is good but because it is "free."

The most frequent criticisms are that the service is too impersonal or that it is insufficient. Patients object because they wait an hour or two to see their doctor, or months for hospital treatment that is not considered urgent. The hospitals have 500,000 patients on their waiting lists.

OBJECT TO ATTITUDES OF MEDICAL STAFF

Once in a hospital, they complain that doctors and nurses tend to treat them "as if we were nobody" and that "hospitals seem to be run for the doctors and nurses instead of the patients."

Opinions on whether the service is good or bad tend to vary according to personal experiences. Nationwide statistics indicate only that health here has improved at about the same pace as it has in nations with private medicine.

There are signs that government medicine has been drawing too heavily on its inheritance from earlier days and that British medicine may be falling behind improved world standards.

The medical profession is discontented. Most older doctors continue to give their best, but a third of the young doctors are emigrating and their places in hospitals are being filled by young doctors from India, Pakistan and Ireland.

MANY HOSPITALS OVER 100 YEARS OLD

Hospital facilities are deplorable. Two-thirds of the nation's hospitals were built in the last century. Many are "temporary" wartime sheds. The first postwar hospitals are being opened, but most old buildings will be needed for many years.

Doctors should be the best judge of how well government medicine works, and a fourth of the doctors have taken out private hospital insurance for themselves and their families.

Because almost all hospitals are government owned and almost all medical men are on government payrolls, the rare private or insured patient almost always goes to the same hospitals and is looked after by the same staff as the government patients. However, he can pick the hospital, the type of room, the time, the surgeon, and the specialist. He can keep some control over his fate.

When the British patient hears the size of bills American patients get from their doctors and hospitals, he shuts up, gives thanks for government medicine and wonders how long it will be until American patients rebel and, for better or worse, let someone like the late Aneurin Bevan, who hated doctors, create a government service.

* From the CHICAGO SUNDAY TRIBUNE—November 19, 1961.

TOMORROW'S CHALLENGE TO THE BRITISH HOSPITALS

Susan Cooper

This is Part Two of a LONDON SUNDAY TIMES *inquiry, published in that newspaper on November 19, 1961.*

The sight of them is familiar enough to most of us: the dark, Victorian-built hospitals, with their rows of narrow windows cheerless as barracks. The problems which they create are not.

The man told by his doctor that he must enter a

hospital for a hernia operation is outraged to find that he must wait eighteen months for a bed. The woman at an ante-natal clinic, attended by an Indian doctor and a Jamaican nurse, is startled to find that half the medical staff of her local hospital comes from the Commonwealth, and that the National Health Service would collapse tomorrow if all the overseas doctors in Britain suddenly decided to go home.

Both these problems depend to a large extent on the abysmal state of most of our hospital buildings. Since the war the strain on hospitals has become immense, as precedence for building resources has been taken by houses, schools, offices. Between 1948 and 1957 the population rose from 48,500,000 to 50 million, but the number of staffed hospital beds actually fell, from 544,000 to 477,000.

WAITING LISTS

In the teaching hospitals there are, on average, four people in London and five in the provinces waiting for every surgical bed. In gynecology, the average waiting-list is nine per bed. At the Middlesex Hospital there were in 1959 (the latest figures available) 16 women waiting for each bed, in the United Cardiff Hospitals 19, in the United Cambridge Hospitals 22, and at St. Mary's Hospitals, Manchester, 26—the equivalent of a wait of more than three years.

While the waiting lists grow in some hospitals, beds are closed in others because of shortage of staff.

The growing national shortage of nurses, which the General Nursing Council is trying to combat by improving pay and conditions, and developing part-time nursing, is naturally most acute in the hospitals which are most obsolete. The young nurse can hardly be blamed for preferring a spacious teaching hospital alive with medical students to a cramped, age-grimed workhouse full of incontinent old people.

Shortage of doctors is similarly localized. London teaching hospitals such as Guy's or St. Bartholomew's are never likely to have difficulty in finding junior medical staff, but in northern regional hospitals the need is serious. In Manchester, between 46 and 48 per cent of "housemen" are foreign: Indians, Greeks, Spaniards, Africans, Armenians, who come to Britain to work for postgraduate degrees. In the country as a whole, a quarter of all housemen and registrars come from overseas.

The lack of young British doctors in hospitals is due partly to the unfortunate recommendations of the Willink Committee, which advised a substantial cut in the intake of medical students, and partly to a pattern of pay and promotion which provides only a very long-term incentive. Its correction is a complex business; but if the physical condition of our hospitals were better, the situation would greatly improve. For one thing, we might curb the eagerness with which potential house surgeons and registrars are emigrating, especially to Canada.

A leading pediatrician sighed and looked out of the window. "You get angry, but you can't go on being angry for years on end. You see something wrong, and try to have it put right, and they say, all right, you can have that in 1972 . . . so you try to forget about the conditions, and get on with the job. Doctors aren't really indignant types. They haven't the time."

The crystallization of the doctors' anger came in 1959, in the report on British hospitals made by Lawrence Abel and Walpole Lewin for the BMA. The amount spent on hospitals since the war, it said, had been "pitifully small." Mere modernization was no answer. £ one million spent modernizing produced £400,000 in subsequent running costs, whereas £ one million spent on new building would produce only £150,000.

The Abel-Lewin report, and later the BMA itself, announced firmly that a minimum of £750 million, over 10 years, was needed to replace old hospitals.

Then, in January, 1961, the minister of health, Mr. Enoch Powell, announced the ministry's new 10-year plan to spend an eventual total of £500 million. Although this met only two-thirds of their demand, the doctors' wrath subsided.

PLANNING

Not all are yet satisfied: "We have a wholly inadequate hospital service," said one flatly. "What's needed in this country is far more than £50 million a year—more like £100 million." But the BMA describes its present attitude as "guarded approval," and Mr. Langton says that the minister's total is "probably as far as you can go with present resources."

At the Ministry of Health they are cheerful at the prospect of an expanding program and a determined minister. There is, they say, "a forward-looking atmosphere." But then comes the cold water: "The BMA figure of £750 million may be realistic in relation to the need, but not in relation to what we can actually spend. The biggest hindrance is planning itself—the time it takes. For a three-year hospital project, you know, you have to start planning three and a half years in advance. Our architects and regional board planners are working under full pressure now, and we need far more of them."

Admittedly, with the changing pattern of medicine, it is vital that a new hospital service should be centrally planned. From the probable shifts in population, the future needs of each area must be estimated. Specialized units like radiotherapy and thoracic departments must be spaced out, to avoid wasteful duplication. The replacement of old geriatric and psychiatric hospitals by smaller units in general hospitals requires central direction. So does the closer linking of general practitioners with hospitals, particularly in maternity and casualty work.

But is the whole mechanism of planning too cumbersome and slow? If £500 million could be spent more quickly, the Treasury's excuse for not

providing £750 million over 10 years would disappear.

With all due respect to individual ministry planners, nothing can muffle urgency more effectively than the deliberate, cautious grinding of the government machine. Consider this, from a member of a regional board: "It's going to be at least seven years before we see any difference in our buildings. We had ministry approval here last December for a comprehensive development scheme. Now we have to go through a long series of stages with the ministry, plans going to and fro before we can eventually put them out to tender. It takes three years from the date when the minister first says go ahead, to the date when the first brick is laid. I feel there are too many checks. It isn't enough, for instance, for the ministry to approve a major scheme—it has to go to the Treasury as well. The Treasury, really, is the nigger in the woodpile."

YEAR TO YEAR

The administrative medical officer in another region pointed out gloomily that this has been the case for a long time. Government money allowed for replacement work counts as revenue, and is fairly readily available; but new building demands capital, which has been allotted on a strictly year-to-year basis.

"If you spend more than your year's allocation, the ministry gets very angry. But if, the next year, you understand, you can't use your spare money to redress the balance, you have to send it back. This has held things up enormously. Suppose you have a capital program for 1960 of £10,000 and you haven't actually managed to spend all that by the end of the year because, say, the supply of pipes and radiators has been held up. You have to send back the money you haven't spent, and when the pipes and radiators arrive you must pay for them out of your 1961 allowance—money which you could have been using for the next project on your list.

"The result is that the most vital work may be postponed. You know you have to spend all your money by March 31. If you have a £5,000 scheme that you know can be finished by then, you will bring it out of its place low down the list of medical priorities, rather than lose your £5,000 back to the Treasury."

He added that although the system seemed insane he could see why it existed. "It's largely British tradition, you know—a terrific respect for public property and money. The regional hospital boards can't be given the same freedom that industry has. . . ."

Though this kind of control will disappear with a 10-year program in hand, the ministry—and hence each scheme costing more than a quarter of a million, carried out under ministry surveillance —must still depend on the Treasury from year to year. Many doctors feel that the system is too complex. "What I'd really like to see," said one, "would be a region handed over to someone like Unilever or I.C.I. and have them told: 'All right, *you* run it.' The saving and the speed would be incredible."

"You can't do anything when you're working for a Civil Service," said another. "Only by the Chinese torture method—you know, drip, drip, drip, wear them away." He sounded resigned. "There are people running the National Health Service who've been transferred from the *Gas Board*. . . ."

This contrast drawn between the dynamism of industry and the careful hesitation of bureaucracy is a hardy perennial. But for the hospital administrators, the contrast is particularly bitter. After 15 years of neglect, hospitals have come into the market for the services of architects and builders only to find that they still have to take their turn after houses, factories, schools. "With the best will in the world, no matter how much money you have to spend on building, the limiting factor is always, in one word, bricklayers. Often we're likely to be bringing in a large building program at the same time as three big industrial firms. If I'm the head man in a firm, I can say to the builders, 'Right, any bonuses you like, let's get this finished by March 31.' But hospitals are dependent for every penny on the Treasury. The builders don't really want to build the hospital—the frustrations and delays involved are far greater than the money they get. So they put in very high tenders, and hope you won't accept."

In this monstrous situation, where the government can justify inadequate expenditure by pointing out that more money could not be spent even if it were made available, there is unlikely to be any marked improvement in the hospital service for 10 to 15 years—the least optimistic doctors say 25. It is possible to paint the rosiest of pictures by looking only at the 200 £250,000 projects under construction or in planning. But while we wait and wait for these to be completed and succeeded by others, two things are happening.

POSTPONED

First, bad conditions are growing worse. More dirt accumulates on old walls, more rust on old pipes; the ques lengthen and the waiting lists grow. The promise of rebuilding, jam tomorrow, becomes a reason for continued neglect.

A consultant at a Birkenhead children's hospital told me how, three years ago, a series of balconies outside the wards of his hospital became unsafe. Since these were the only places in an urban hospital where children could lie in the open air, the medical board recommended that they should be replaced, using money from an endowed fund. "The management committee had the money, they had the plans—and they turned the idea down flat. Just because, at some indefinite and likely-to-be-postponed date, a new children's hospital is to be built in this area, and this one will become redundant. So for the last three years, and no doubt for

several years to come, the children at this hospital are deprived of fresh air."

Such decisions are not uncommon. It is true that in many places regional boards are approving urgent construction schemes even in hospitals which are due for demolition, and treating the expense as a write-off. But they feel that their scanty architectural resources must be reserved as far as possible for new building. "We will not patch and mend in this region any more if we can help it, not unless the scheme suggested involves a very modest sum. . . ."

Secondly, although the patient will of necessity wait for new hospitals, medical progress will not. Already it is advancing with such speed that any hospital built today is necessarily obsolescent, and the key word of all planning is "flexibility."

NEW PATTERN

The war years brought tremendous advances in antibiotics, blood transfusions, plastic surgery. The whole pattern is changing. Diseases like pneumonia and tuberculosis, once expected to be fatal, are now controllable, and occupy far fewer beds; but as new treatments are found for the degenerative diseases of an aging population, the strain on hospital resources is not lessened, but increased.

More mothers want to have their babies in hospitals; but how long will it be before the intense competition for maternity beds is eased? The accident rate has doubled since the war, but will it be one decade or two before an effective national accident service can be set up and staffed? And what will the accident rate be by then?

Bad as our hospitals are at present, the worst of them are likely to grow worse still before the general situation can be improved. Medical advances catch up with new hospitals before they can leave the drawing-board. At all levels, a spirit of urgency is notably lacking.

Doctors and regional boards, lulled into quiet relief by a building program which seems frenzied in comparison with the last neglected 15 years, talk trustingly of the £500 million which the government is to spend during the next decade. But will it be spent?

If a total of £500 million is to be reached by 1971, annual expenditure at the end of the decade must have reached more than £70 million. But if our architectural and building resources are strained to the utmost now, in spending half that amount, how will such an acceleration be possible?

The welfare state is, in this country, the greatest social experiment of the century, but it is still the poor relation of national expenditure. Last year, when we spent £25 million on hospitals, we spent £81 million on schools. If it is argued that there are barriers to spending more money on hospitals, then money should be spent on removing the barriers. There is, according to one eminent hospital architect, a large untapped reservoir of architects, surveyors, engineers and contractors who would be only too willing to build hospitals if they could be assured of "a clean job."

"In Nigeria, one British firm has planned, built and got the first patient into a 200-bed hospital in two years—the time that we take here to reach the sketch-plan stage. If only people would let us get on with the job without endless delays, we could."

CONSCIENCE

Hospitals are a social service, and only an urgent spasm in the social conscience can bring them the full and rapid reform that they need. And the social conscience belongs in the end not to the government but to the ordinary man and woman; the couple whose life centers comfortably around their car, television set, refrigerator, washing machine. They are healthy, and they never give hospitals a thought. If they read of neglected hospitals in their newspaper today, they will forget it tomorrow.

It would be better to remember, since they are the people most closely involved. If their car skids into a tree, it is they who will have to be taken to the overworked casualty unit housed in an air-raid shelter left over from the last war.

And it is they who may find themselves eventually a part of the picture which will haunt me for a long time, out of the hospitals of modern Britain: the silent circles where 30 crumbled wrecks of old men or women sit gazing blankly out at dirty roofs through narrow windows, in a long, bleak room with one dubious-smelling lavatory and a single bathroom stacked with commodes.

They sit above three flights of stone stairs up which they were carried, months or years ago, when they came under the generous protection of their own welfare state, and down which they will be carried, months or years hence, when they die.

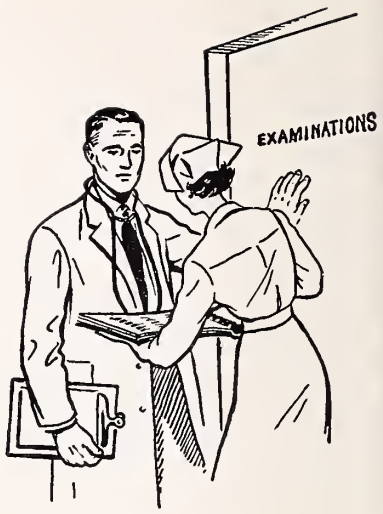
FILM EXPOSING COMMUNIST IMPERIALISM

The "myth of Western imperialism" is exploded, and attention is turned to "the real culprit" in a new film being released by Pepperdine College, Los Angeles. Called "Communist Imperialism," the half-hour sound movie is the second in a series of 13 being produced for the college by Sid O. Fields, of Hollywood, on the general theme "Crisis for Americans." The first in the series, "Communist Accent on Youth," is now in use by groups in 48 of the 50 states. The films feature Harry Von Zell as narrator.

Since Karl Marx, the communist propaganda theme song throughout the world has been that nations in which the capitalistic system now prevails will ultimately and inevitably become imperialistic and will move out and exploit backward and undeveloped areas through a process of colonialism.

For additional information, address Mr. Doyle T. Swain, Pepperdine College, P. O. Box No. 876, Los Angeles 44.

THE DOCTOR'S BUSINESS



More About Corporations, Associations and Pension Plans

HOWARD D. BAKER
WATERLOO

Although corporations, associations and pension plans for doctors of medicine have been favorite topics of conversation throughout the past seven or eight years, and although they have been promoted, periodically, by some of the less conservative financial and tax advisors, nothing of the sort can yet be recommended to the generality of physicians.

Informed people believe that today we are no nearer a final solution of this problem than we were seven years ago. They contend that the prospective revenue loss to the federal government is so large as to provide the Treasury Department with adequate incentive for continuing to oppose such plans indefinitely.

Let's take a close look at this type of planning. First, what are corporations and associations, and what is their purpose? Individual medical practices and partnerships are not legal entities, and thus the physicians who choose either of those patterns are regarded as self-employed, for tax purposes. Corporations and associations, on the other hand, are legal entities and have employees in their own right, including stockholder-employees. Associations or corporations, theoretically at least, can provide medical and disability insurance, pensions, etc. to their employees more advantageously, in so far as taxes are concerned, than self-employed individuals can provide such things for themselves, and they can make Social Security coverage available to them, too.

The association was first employed years ago by a group of physicians in Montana who wished to avail themselves of these alleged benefits. Their form of organization and their pension plan were ultimately upheld by the courts. Since then, dozens of associations have been formed, only to meet with varied attacks and delays from the Treasury Department. Today, only a small handful of such organizations have been fully approved.

The association was a logical form of organization, since state laws, until 1960, prohibited professional people from practicing as corporations. In 1961, however, many "enlightened" state legislatures lowered the bars by passing "service, professional or physician corporation laws." Simply stated, these acts permitted the practice of various professions under corporate organization, provided that there was no non-professional ownership or control.

At last, it appeared that the way had been cleared for professional people to incorporate and enjoy the same benefits that had always been available to others. So far, however, *this has not proved true.* Further obstacles were encountered, and the Treasury Department is imposing unforeseen delays.

WHAT IS THE FUTURE OF THESE ORGANIZATIONS?

One well-informed source states that the Treasury Department is preparing a new attack. He says that both types of organization (corporate and association) will receive Treasury approval, but then an attack will be leveled at classifying owners as "employees" for tax purposes. In other words, the types of organization will be sanctioned, but they will be prevented from achieving their objective.

In view of the fact that approval of the pension plans of many existing associations has been *pending* for five or six years, and in view of the difficulties of other sorts that have yet to be resolved, the future for these new organizations doesn't seem very bright.

WHO CAN BENEFIT, AND WHAT ARE THE COSTS?

As is so often the case, the benefits afforded by these organizations must vary directly with the wealth of the organizers and with their ability to

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

forego the use of substantial amounts of income for extended periods of time. The doctor who is currently in a 30 per cent tax bracket and is spending all he earns (or possibly more) has little to gain from such an arrangement, for he certainly is in no position to forego the use of between 10 and 20 per cent of his annual earnings for 20 or 30 years. Similarly, a group consisting of two financially mature doctors in high tax brackets and two young, low-income doctors would find it difficult to take advantage of this type of plan.

The group that might benefit would be one made up, exclusively, of physicians with high net incomes and high degrees of financial security. Yet, even such a group might find some non-tax factors that would outweigh the advantages. How much of the tax saving will the inclusion of non-owner employees nullify? What effect will the plan have on the group's ability to attract prospective associates? Will the building up of a large "nest egg" encourage members to withdraw in order to get their hands on their shares of the accumulation? All of these are important questions that must be answered.

What is the cost of achieving association or corporate organization? We have been quoted fees ranging from $800 to $2,500, depending upon the size of the group, just for investigation and organization. These amounts do not include the costs of administration or of possible litigation.

OUR ADVICE: WAIT!

In summary, our position on these groups still remains *negative,* in all but a few exceptional cases.

If yours is a group for which this type of planning is contraindicated by none of the difficulties that I have listed, then we urge you to seek qualified counsel. Dollars invested in qualified counsel will return handsome dividends.

Finally, it would be most unwise for you to aim at becoming the first organization of this type in your vicinity. Let other people make the mistakes, and then utilize the experience of those pioneers.

CLINICAL OPHTHALMOLOGY

The annual clinical conference of the Chicago Ophthalmological Society will be held on February 16 and 17 at the Drake Hotel, in Chicago. The guest speakers will include Drs. David G. Cogan, Boston; Arthur Gerard DeVoe, New York City; John R. Fair, Augusta; Trygve Gundersen, Boston; John S. McGavic, Bryn Mawr, Pennsylvania; C. Wilbur Rucker, Rochester, Minnesota; Daniel Ruge, Chicago; and Mr. R. Ross Russell, Oxford, England.

The subjects to be discussed are: "Retinal Architecture and Physiology," "Personal Experiences With Herpes Simplex Corneae," "The Management of Congenital Cataracts," "Recent Developments in the Field of Human Toxoplasmosis," "Congenital Toxoplasmosis," "The Surgery of Corneal Disease," "Reactions to Lens Cortex," "The Role of the Lens in Glaucoma," "The Optic Chiasma as a Source of Mistaken Diagnosis," "Some Sources of Diagnostic Errors in Neuro-Ophthalmology," "Neurosurgical Diagnostic Tests Which Aid in the Diagnosis of Visual and Ocular Findings," and "Platelet Embolism."

The registration fee for the entire course, including round-table luncheons and dinner, is $45, and is payable to the registrar, Mrs. Mary E. Ryan, 1150 North Lorel Avenue, Chicago 51.

PATIENTS WANT FREE CHOICE OF PHYSICIAN

In the November 27 issue of his WASHINGTON REPORT ON THE MEDICAL SCIENCES, Mr. Gerald Gross summarized an interesting special article that had appeared in the November issue of the MONTHLY LABOR REVIEW, comparing consumer attitudes toward Kaiser Permanente and Blue Cross-Blue Shield.

For a master's thesis at the University of California, Mr. Burton Wolfman surveyed 100 workers enrolled in a liberal Blue Cross-Blue Shield plan and 100 in a Kaiser Foundation health plan. All 200 belonged to the same union. The Kaiser group was slightly younger, on the average, had 25 per cent more children and included nearly twice as many heads of non-white families. In each group, the average family income was $6,400.

Here are some of the author's findings: Though their monthly premiums were higher, Kaiser families averaged out-of-pocket expenditures of $255 in 1959 for all health costs, including drugs, compared with $312 for "Blue" families. Excluding premium payments, the former spent 2.4 per cent of income for medical and hospital care, and the "Blues" spent 3.8 per cent. Although Kaiser families got more for their health dollar, three-fourths of the local union's membership had chosen Blue Cross-Blue Shield.

The No. 1 reason given by "Blue" families in explaining their choice of coverage was free choice of physician and hospital. The other group, on this point, stressed lower costs and broader benefits.

"In choosing a health plan," the author concluded, "many of these workers subordinated cost considerations to subjective factors associated with health plan membership, including strong feelings of social class or status and the expectation of higher quality care."

Iowa Association of Medical Assistants

RECRUITING MEDICAL ASSISTANTS

In many communities, medical assistants are invited to participate in high school or junior college "Career Day" programs. We should accept these invitations promptly and enthusiastically, first because they provide us opportunities for civic service, and second because they give us chances to improve our public relations. Here are some of the points that we should bring out in speaking to these groups of students.

We can begin by asking a series of questions:

Do you like people?
Do you want variety in your work?
Can you "take hold" and get things done?
Do you have some talent for science?
Can you be trusted with confidential information?

If each answer is "Yes," we can undertake to answer the following questions:

What sorts of work does the medical assistant do? The medical assistant works in the office of a doctor of medicine. First, as an office assistant, she acts as a secretary, receptionist and bookkeeper, she answers the telephone, greets patients, handles correspondence, keeps track of patients' accounts and maintains up-to-date medical records.

Second, as a technical assistant, she prepares patients for examination or for treatment, takes temperatures, measures heights and weights, sterilizes instruments, and stands by to assist the doctor as he examines or treats patients. With special training, she may perform certain simple laboratory tests, take x-rays and give other medical assistance to patients under the doctor's supervision.

Third, as a housekeeper, she keeps the office in order, the waiting room neat and attractive, the consulting room tidy and ready for use, and she makes sure the office and laboratory supplies are arranged properly, and she reorders them when stocks run low.

What qualifications must one have to become a medical assistant? Educational standards are flexible, but one needs basic office skills, a familiarity with medical words and phrases, and some knowledge of medical office practice and laboratory procedures. Some of these, one can acquire on the job.

The recommended education consists of a planned curriculum in medical assisting in a business school or college. The courses now offered vary in length from one to four years. They combine secretarial training, including medical dictation and typing, and pertinent sciences and laboratory technics. If such a course is unavailable, the girl who aspires to become a medical assistant will find advanced secretarial training or even a high school business course helpful. One's final training, in any case, is on the job, as one learns how her employer wants things done.

The Iowa Association of Medical Assistants, in cooperation with the Iowa Medical Society and the State University of Iowa, sponsors an In-Service Training Program for Medical Assistants each fall on the S.U.I. campus in Iowa City.

What salary and working conditions can a medical assistant expect? Doctors' offices are pleasant places to work. The work week usually approximates 40 hours, and earnings reflect the local salary picture. Medical assistants' salaries are about equal to those of business office assistants with comparable amounts of training.

What other rewards can one look for as a medical assistant? A career as a medical assistant is challenging. One has the satisfaction of helping people, rendering a real and necessary service both to the doctor and to his patients.

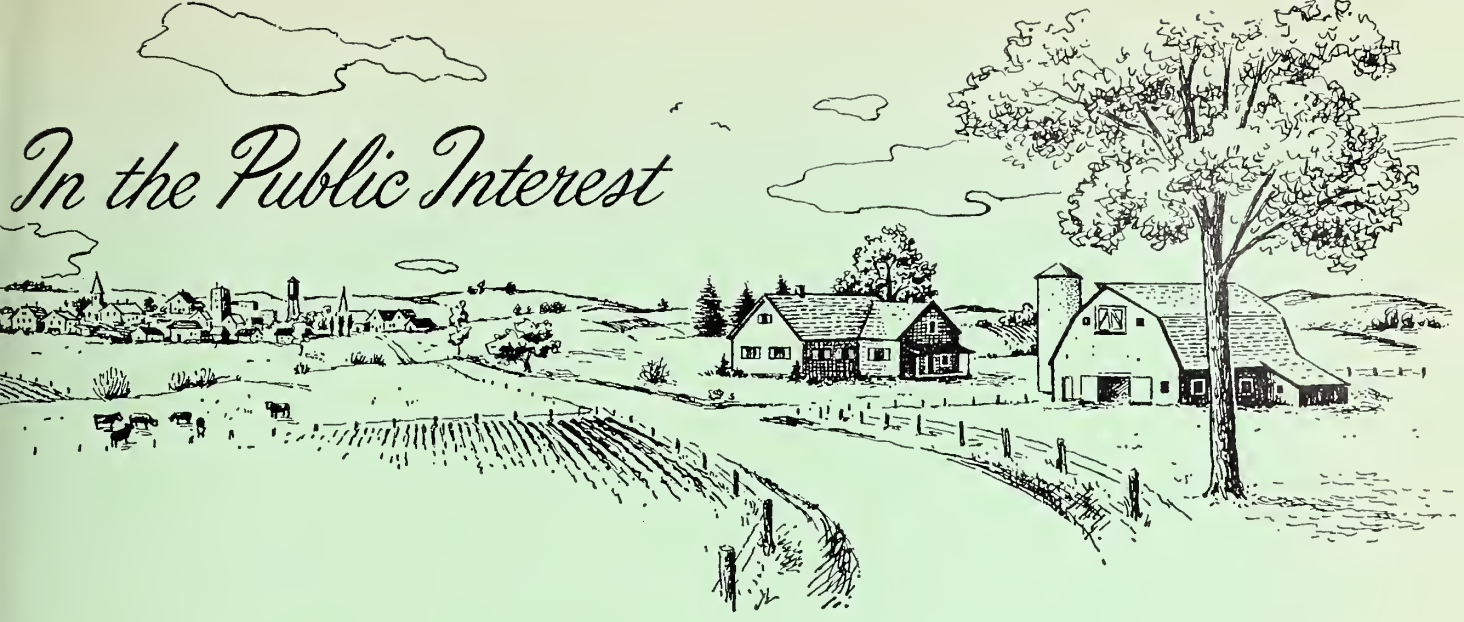
One can look forward to considerable job-security, for the demand for trained medical assistants will continue to grow. As people seek more and better medical care, the practice of medicine becomes more specialized, and greater numbers of trained people are needed in all health services.

How can one secure a job as a medical assistant? A girl who is trained and ready to work should check the help-wanted ads in her local newspapers, inquire at medical and commercial employment agencies, or apply at physicians' offices.

Where can one get more information about the job of the medical assistant? Write to the American Medical Association, 535 North Dearborn Street, Chicago 10, for the booklet "Winning Ways With Patients."

—Helen G. Hughes

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the Journal, 529-36th Street, Des Moines 12, Iowa.



Doctors Should Take Every Opportunity to Explain

The Structure and Activities of the American Medical Association

Last June, at the close of his term as president of the American Medical Association, Dr. E. Vincent Askey told the AMA House of Delegates that medicine needs informed defenders. "It is important for each of us," he declared, "to accept the responsibility for telling our positive story of public service, medical research and legislative interests as often as is humanly possible. People want to know. There are no Iron or Bamboo curtains in medicine or in our Association, and we all must be active spokesmen!" Dr. Leonard W. Larson, who is Dr. Askey's successor as AMA president, has reiterated that appeal.

THE AMA IS CONTROLLED AT THE GRASS ROOTS

Let's use every opportunity to tell our fellow citizens that the AMA, unlike many other national organizations, is just as responsive to the wishes and beliefs of the individuals who compose it as is our United States government. The AMA—now approaching 115 years of age—has about 180,000 members (roughly 70 per cent of the 255,000 licensed doctors of medicine in America), and each one of those 180,000 is a member of one of the 1,911 county medical societies, and a member of one of the 54 state and territorial medical societies. The AMA House of Delegates, its only policy-making body, contains one representative physician for every 1,000 members of each state or territorial organization, and the doctors in the respective counties are just as fairly represented in the state or territorial houses of delegates. Each physician has an opportunity to speak his mind and to make his influence felt, and the majority rules. Votes are almost never unanimous. Doctors are the most independent of thinkers, and they always say what they think. The idea that there might be reprisals for failure to follow a "party line" is ridiculous.

The AMA, like a majority of the doctors who compose it, is conservative, but the fact is that it supports more legislative proposals than it opposes. During the 86th Congress, AMA representatives testified on just 28 of the 700 medical bills that were introduced. In six instances they expressed disapproval, but in 19 instances they endorsed the legislation. On the three others, their statements were merely informational.

Through the years, the AMA has recommended hundreds of health laws. Its efforts paved the way for pure food, drugs and cosmetics laws. It has advocated the tightening of licensure regulations for each of the health professions. Currently, it favors one-time grants for expanding medical school facilities, implementation of the Kerr-Mills Act by the various states, and federal loans for proprietary nursing homes, among other proposals.

THE AMA'S LOBBYING EFFORTS ARE MINOR

The AMA maintains a Washington office, manned by just 13 employees, chiefly for the purpose of watching the progress of these hundreds of health proposals that are introduced at each session of Congress. The AMA staff in the national capital provides information to the members of the Senate and House of Representatives, and to the administrative branch of the government, and on occasion may exert an effort to influence legislation on capitol hill. In most instances, however, the Washington office simply sends word to the Chicago headquarters that if the beliefs of a majority of doctors are to prevail, attempts must be made to change the minds of certain representatives and senators, and then individual doctors in the respective legislators' constituencies are asked to write to those

men or to talk with them as soon as possible. *The AMA devotes just seven-tenths of one per cent of its annual budget to legislative activities!*

THE AMA SERVES THE PUBLIC CONSTANTLY

Article II of the Constitution of the AMA states that the objective of the organization is "to promote the science and art of medicine and the betterment of public health." Let's make the most of every chance to tell people how the Association has worked to achieve that purpose!

The first of the AMA's specific goals was the improvement of medical schools. In 1909, when Abraham Flexner studied and reported on the 165 institutions then granting medical degrees, some schools were admitting students directly from high school; others were even taking some with only elementary-school educations. The medical training that was provided was sketchy. Many schools were spending more money for advertising than for laboratories. On the publication of the Flexner report, many of the "diploma mills" closed their doors, and many others either improved their offerings or quit a short time later. Today, the 89 colleges of medicine in the United States graduate better-trained physicians than do the schools that are located elsewhere in the world. The AMA continues its work of this sort, however, by inspecting and supervising internship and residency (specialty) training programs at teaching hospitals, many of which aren't connected with colleges of medicine. Internes and specialty-trainees are highly useful in any hospital, and the staffs there must constantly be reminded not merely to keep those men busy but to provide them valuable instruction as well. Through the Joint Commission on Accreditation of Hospitals, the American Hospital Association, the American College of Surgeons, the American College of Physicians and the AMA inspect and put their stamp of approval upon hospitals of all sorts and sizes, thus insisting upon high standards of patient care.

For more than a century, the AMA has worked at exposing charlatans and at enforcing the laws that are intended to protect people against them. The AMA Bureau of Investigation cooperates with the U. S. Food and Drug Administration, the Post Office Department and the Federal Trade Commission in that task. The Bureau doesn't itself prosecute quacks, but it frequently provides the evidence necessary to convict them. Just this last fall, together with the federal agencies just named, the AMA held a Congress on Medical Quackery, in Washington, as the start of a public education campaign that it hopes will very nearly finish the task of putting unscrupulous practitioners out of business.

The AMA's efforts have helped make safe and effective medicines available to patients everywhere. Most of the new remedies have been developed by the pharmaceutical manufacturers, by the government's laboratories, or by the medical schools with financial help from either the drug makers or the government, but the AMA has invested more than a million dollars of its member physicians' money in these projects, too. More importantly, perhaps, the AMA evaluates medicines and apparatus used in treating patients, thus helping physicians to provide only the safest and most effective therapies to their patients. Under a new and far-reaching drug information program announced on June 9, 1961, the service is being expanded. A new book, including authoritative summary statements on drugs and their usage will be published annually. In a recent three-year period, 996 new products were introduced in the ethical (prescription) drug area, plus 311 new forms of old products. Thus, practicing physicians greatly need just such help as this.

The AMA distributes pamphlets, maintains a lending library, translates medical articles and books from foreign languages, and answers innumerable questions individually, for both lay people and doctors, but its principal means of disseminating information are its meetings and its journals. It holds two big meetings each year, in June and in November and December, at each of which literally hundreds of lectures are delivered and hundreds of demonstrations are performed. In addition, the AMA stages numerous meetings each year on specific medical problems such as school health, sports injuries, mental health, industrial medicine, etc.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, a weekly magazine that is foremost in its field, is distributed to all member physicians, and besides, each member may have his choice of one of the 10 monthly magazines that the AMA publishes for specialists of various sorts. A fortnightly newspaper for physicians, THE AMA NEWS, is distributed to all physicians, whether or not they are members of the AMA, and a monthly magazine for lay people, TODAY'S HEALTH, is published for subscribers, and a copy of each issue is sent to every member physician for his patients to read in his waiting room.

Only a few of the other AMA services to doctors and, through them, to the public can be enumerated here. The AMA provides leadership in distinguishing between food fads and food facts, in getting manufacturers to equip cars with safety devices such as seat belts and padding, in perfecting voluntary health-insurance plans, in improving the training of auxiliary health-service personnel, in evaluating the usefulness of such technics as hypnosis, and in studying the medical aspects of space exploration and jet-age aviation.

SUMMARY

In short, the American Medical Association exists because people in general expect more of physicians, and because physicians expect more of themselves, than of anyone else. Just as the individual doctor of medicine works constantly for the best interests of his patients, so the organization to which 180,000 American doctors belong exists to serve those doctors' patients. *The AMA does not dominate; it serves!*

Let's all of us tell those facts as often and as completely as we can.

STATE DEPARTMENT OF HEALTH

Edward G. Zimmer

COMMISSIONER

MORBIDITY REPORT FOR MONTH OF NOVEMBER 1961

Disease	1961 Nov.	1961 Oct.	1960 Nov.	Most Cases Reported From These Counties
Diphtheria	0	0	1	
Scarlet fever	142	156	150	Johnson, Polk, Woodbury
Typhoid fever	0	0	2	
Smallpox	0	0	0	
Measles	191	31	117	Cerro Gordo, Linn, Pottawattamie
Whooping cough	8	14	8	Pottawattamie
Brucellosis	11	6	13	Scott
Chickenpox	153	61	427	Dubuque, Pottawattamie, Woodbury
Meningococcic meningitis	1	2	0	Butler
Mumps	91	94	301	Dickinson, Story, Woodbury
Poliomyelitis	1	0	1	Monona
Infectious hepatitis	96	120	26	Boone, Linn, Polk, Scott, Webster
Rabies in animals	22	19	12	Greene, Woodbury
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	33	23	28	For the state
Syphilis	59	82	69	For the state
Gonorrhea	95	109	94	For the state
Histoplasmosis	5	0	0	Polk
Food intoxication	0	0	0	
Meningitis (type unspecified)	11	13	1	Clay
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	0	0	
Salmonellosis	2	1	5	Des Moines, Johnson
Tetanus	1	0	0	Pocahontas
Chancroid	0	0	1	
Encephalitis (type unspecified)	0	0	0	
H. influenzal meningitis	0	1	1	
Amebiasis	0	0	0	
Shigellosis	0	1	1	
Influenza	4	14	59	Dickinson

POLIOMYELITIS IMMUNIZATIONS

Though a month or two ago would have been ideal, there is still time to begin poliomyelitis immunizations and complete the series of three inoculations, using the regularly accepted intervals between injections, and establish good protection before the start of the poliomyelitis season. We are impressed, however, by the fact that many people, instead of beginning immunizations with the Salk vaccine, are delaying, probably in the hope of obtaining the oral, attenuated vaccine.

Type I oral, attenuated poliomyelitis vaccine was licensed in August, 1961, and Type II was licensed in October. Type III vaccine may not be available for some time, however. Though throughout the country three years ago almost all isolations of poliomyelitis virus were Type I, during 1961 there was a great increase in Type III. Early summaries indicate that Type III was found in about 50 per cent of all viral isolations in paralytic cases during 1961. With this in mind, even though oral immunizations for poliomyelitis were given for Types I and II, one would have to give the regular series of three injections of Salk vaccine in addition, if patients were to be properly protected against Type III. A five-injection program would be difficult to administer in one year, and even more difficult to explain to the public.

The Iowa State Department of Health agrees with other state departments of health and with the Association of State and Territorial Health Officers that the time for use of the oral vaccine on a routine basis has not yet come. Dr. Luther Terry, surgeon general of USPHS, says, "Immunization programs with oral polio vaccine are not considered desirable until it is possible to initiate programs with all three types of vaccine." Here are some representative attitudes of other state departments of health. The November, 1961, issue of the ILLINOIS HEALTH MESSENGER, a publication of the department of health of that state, declared, "The Illinois Department of Public Health does not recognize the oral vaccine as a substitute for the 'killed' polio vaccine, which provides protection against all three types of paralytic polio." Correspondence from the director of health in the State of Washington says: "The Washington State Department of Health recommends that live, oral,

attenuated poliovirus vaccines *not* be used for individual or mass immunizations at this time."

The Iowa State Department of Health still recommends that the basic immunization series for poliomyelitis be three injections of the Salk poliomyelitis vaccine, and that the regularly accepted spacing of the injections be followed. Thus, the second dose follows the first after an interval of about one month. The third dose follows the second at a minimum of five months, but usually seven. The first booster injection is to follow a year after completion of the basic series of three injections. There is still some question as to the frequency of subsequent boosters. Currently, we are advising that the second booster be given within one year to two years following the first booster, with a shorter interval if poliomyelitis becomes an immediate threat in the area.

The basic series of three injections of Salk vaccine plus the first booster is known to confer 95 per cent protection against paralytic poliomyelitis.

CARBON MONOXIDE DEATHS IOWA, 1960

The one- or two-line stories listed below, representing the 13 deaths from carbon monoxide poisoning in Iowa during 1960, vividly depict dangers posed by this colorless, odorless gas, and the tendency many people have either to forget or to minimize those dangers.

Although the number of carbon monoxide deaths throughout the country for 1960 is not yet available, the USPHS records show that there were 644 of them in 1959. Of those, as in Iowa during 1960, a majority (385) were attributed to motor vehicle exhaust.

The months in which the 13 Iowa deaths occurred show that the danger is definitely greatest during the cold seasons of the year. All 13 Iowa deaths took place between October 10 and April 22.

Every person we question admits he knows one shouldn't run the motor of a car in a garage with the doors closed. However, many people don't realize in how short a time an individual can be overcome by carbon monoxide. Generally, they know that gases from a defective exhaust line may find their way up into a car. Perhaps they don't so thoroughly understand that slow-burning fires (such as a pail of glowing charcoal in the closed van of a truck) give off large quantities of carbon monoxide. Perhaps too, many people believe that if carbon monoxide is present, even in small quantities, they will be able to smell it.

Since the presence of carbon monoxide cannot be detected by smell, and since its overpowering action requires so short a time, it is best to take no chances with it. A little foresight and planning can enable people to avoid such fatal or near-fatal accidents.

Death No.	Age	Sex	Month of Death
1	18	Male	January
2	42	Male	January
These men were burning charcoal in a bucket in a truck to prevent perishable materials from freezing. They remained inside the truck.			
3	22	Male	January
Information incomplete.			
4	54	Male	February
Accidental. This man was working on a car with the motor running. The garage was small and the doors were closed.			
5	17	Female	February
Accidental. The car was parked in a garage with the motor running and the doors closed.			
6	24	Male	February
Accidental. This man was working on a car with the motor running in a garage.			
7	43	Male	March
Accidental. This man was at work on a car in a garage.			
8	54	Male	March
Accidental. Gas heater in a home was turned too high. Nonfunctional heater flue.			
9	83	Female	March
This woman had sat near the stove with the heater door open.			
10	41	Male	April
Information incomplete.			
11	20	Male	October
Accidental. This man was working on a car with the motor running in a closed garage.			
12	16	Female	December
This woman was seated in a car which was in a garage with closed doors. The motor of the car was running.			
13	21	Male	December
Accidental. This man was working on a car with the motor running. The garage doors were closed.			

YOU'LL HEAR ABOUT . . .

the Socialization of Medicine in Manitoba

at the

IMS ANNUAL MEETING

May 13-16, 1962

Veterans Memorial Auditorium, Des Moines

Woman's Auxiliary News

OUR PRESIDENT SAYS—

January, the first month of the year, derived its name from that of the Roman diety Janus, primarily the god of gates and doors. He was represented as having two opposite faces—one looking ahead and the other behind. As members of the Woman's Auxiliary, we can better plot our course by taking note of our past successes and failures.

Now that Nineteen Hundred and Sixty-one has passed, here's to you and Nineteen Sixty-two!

Be strong, that nothing may disturb your peace of mind!

Talk health and happiness to every person you meet.

Cherish each friend.

Think only of the best, work only for the best, and expect only the best.

Be just as enthusiastic for the success of others as you are for your own.

Forget the mistakes of the past, and press on to greater achievements in the future.

Give so much time to self-improvement that you will have no time to criticize others.

Be too big for worry, too noble for anger, too strong for fear, and too happy to acknowledge the presence of trouble!

—GERTRUDE F. KILGORE, *President*

Dr. and Mrs. Charles H. Flynn, formerly of Clarinda, are now living at 631 Meadowlark Lane, Cheyenne, Wyoming. Mrs. Flynn (Esther), a past president of the Woman's Auxiliary to the Iowa Medical Society, will be greatly missed by all of us, and she says she would like especially to hear from her friends in Iowa.

SPEAKING OF LEGISLATION

Mrs. H. G. Ellis, Legislative Chairman, encloses a copy of her letter "Have You Heard" with each mailing of WOMAN'S AUXILIARY NEWS reprints. It contains up-to-the-minute information on the status of the King-Anderson Bill, and on plans for defeating it. *Be sure to read* this concise orientation on legislation that will come up when Congress reconvenes. If you have any questions, do write to Mrs. Ellis, at 5504 Shriver Avenue, Des Moines 12, or offer your assistance to your own county medical society.

Mrs. Ellis would also like to hear of the plans for legislative activity in your county.

A SAFETY PROGRAM FOR YOUR COMMUNITY

Auxiliary members who belong to various other organizations have enviable opportunities to guide and take responsibility for safety programs in those groups, and to help create effective educational programs in the broad field of safety. Skilled communication, to a large degree, will help build a successful safety program in your town.

Determine which hazard is the greatest menace in your community. Once this has been decided upon, try to remove it through all of the means at your disposal. If the objective can't be attained through a joint endeavor with other organizations, let your Auxiliary—the doctors' wives—set an example.

Pick your project, organize your campaign, and then get each member to participate. Perhaps in your area one of the following is a matter of major concern: traffic safety, including driver education, pedestrian safety and bicycle safety; home safety, including child safety at the dangerous age, poison control, senior-citizen safety and prevention of home fires; public safety, including all phases of water safety.

When you plan your safety program, your Safety Chairman will be happy to assist you with materials and ideas. Write to her, Mrs. Ralph Moe, Griswold.

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COUNTY AUXILIARIES

Black Hawk

The Black Hawk County Auxiliary's November meeting was held at the home of Mrs. Lewis Zager, 121 Kenway Road, Waterloo. That meeting served as the kick-off for the ticket sale for the annual Medicine Ball, to be held at Electric Park Ballroom on February 7. A full report of that event will be carried in a later issue of WOMAN'S AUXILIARY NEWS.

Craig D. Ellyson, M.D., of Waterloo, was guest speaker at the November meeting of the Auxiliary, discussing medical legislation. An auction sale was also conducted, with proceeds going to the American Medical Education Foundation.

Buchanan

The Woman's Auxiliary to the Buchanan County Medical Society held a benefit card party November 18 at Hotel Pinicon. Various card games as well as chess were played. Two door prizes and a number of game-score prizes were given.

The proceeds from the sale of tickets will be used at the county level. Some of the projects planned for the year are: individual Christmas gifts for the people at the Buchanan County Home; county-level prizes for the winners of the essay contest on "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System Over Communism"; and a continuation of the providing of Christmas gifts for the children at the Independence Mental Health Institute, as the benefit funds permit.

The general chairman in charge of the benefit was Mrs. Selig M. Korson, and each other member of the Auxiliary worked on a committee that helped to make the event a great success.

Clay

The Woman's Auxiliary to the Clay County Medical Society was awarded a Certificate of Appreciation by the Clay County Association for Retarded Children at its annual awards and appreciation dinner on November 14.

The citation reads: "For helping to assure success of National Retarded Children's Week and for providing opportunities for Rehabilitation and Achievement for Children who are mentally retarded."

The certificate was signed by the president, Mrs. G. E. Pullen, of Spencer, and was given in recognition of the work the Auxiliary did in coordinating the first sale of the handicrafts of these children, with the Craft and Hobby Sale for Crippled and Handicapped Children and Adults, held at the Clay County Fair, in September.

The award was accepted for the Auxiliary by Mrs. Dean H. King, and will be mounted in the permanent records of the Auxiliary.

Lee

The North Lee County Medical Auxiliary met on Tuesday, December 5, for a ten-o'clock coffee at the home of Mrs. A. C. Richmond, in Fort Madison. The newly-elected officers were introduced: president, Mrs. Frank Poepsel; vice-president, Mrs. Robert Murphy; secretary-treasurer, Mrs. Miles Archibald. Three new members were also presented: Mrs. Jaime Polit, Mrs. James Healy and Mrs. Archibald. The guests included the wives of local dentists and pharmacists, and Mrs. Robert Smith, of Donnellson, women's chairman of the Farm Bureau.

Ronald Reagan's record "Speaking Up for Medicine" was played as a part of the afternoon program.

Mahaska

The Woman's Auxiliary to the Mahaska County Medical Society held a one-o'clock luncheon meeting at the Downing Hotel on Tuesday, November 28. Mrs. Kenneth Lemon presided at the business meeting.

Plans were made for the Christmas party for the Mahaska County Hospital staff, to be held Thursday, December 21, from one to five in the afternoon at the Elmhurst Country Club. The Auxiliary members undertook to decorate, to get presents for the staff members and to serve as hostesses.

Also, gifts of food and presents were arranged so as to provide a Christmas for a needy family, with the Auxiliary contributing a turkey.

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

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References: (1) Malone, F. J., Jr.: *Mil. Med.* **125**:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* **34**:187, 1959. (3) Ullman, A.: *Delaware M. J.* **32**:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* **108**:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* **10**: 694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* **11**:392, 1960.

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Scientific Articles

Frostbite of the Extremities
A Review of Current Therapy

ADRIAN E. FLATT, M.D.
Iowa City

THE TREATMENT OF FROSTBITE was the subject of two papers and considerable discussion at the 1961 Forum on Fundamental Surgical Problems of the American College of Surgeons. Dr. William J. Mills, of Anchorage, Alaska, made a comprehensive presentation on the subject at that meeting, and also has recently published three papers reporting his work in this field during the last six years. The following report of current views on frostbite therapy is based largely on Dr. Mills' extensive experience, but also on the limited number of cases that have been treated in recent years at University Hospitals, Iowa City.

Frostbite, by definition, is a result of the cooling of tissues to the point of ice-crystal formation. It is therefore both a physical and a biochemical injury. The physical injury is the result of cell-rupture that has taken place during the growth of the ice crystals. Meryman has shown that the sizes of these crystals are related to the rates of freezing and the lengths of time in which the tissues are maintained in a partially frozen state. The biochemical injury to the cells is partially produced by the dehydration, which causes both protein denaturation and a paralysis of enzyme activity. Several investigators believe that reduced circulation in the area is responsible for further tissue damage, but it is probable that this effect is seen largely in a tissue-temperature range of +5° to +15°C.

By the time the frostbitten patient reaches medical care, the tissue damage has already occurred, and therapy must therefore be directed to limiting the damage.

Inevitably, some tissue must have been lost, but proper care at this stage will prevent further loss from secondary changes.

IMMEDIATE TREATMENT

Primary treatment consists of general supportive care, for the patient is frequently in a state of hypothermia, and of local care to the frozen tissues. General body temperature is best raised by the application of external warming devices and by the administration of warm fluids by mouth.

The frozen limb must be thawed by rapid rewarming at a temperature of 42°C. There is now ample experimental and clinical evidence that the traditional slow-thawing methods such as immersion in ice water or rubbing with snow produce more tissue damage than occurs if the tissues are rapidly rewarmed.

Hot-air rewarming is particularly dangerous, since the tissue temperature cannot be readily controlled, and the limb, in effect, is being cooked as in an oven. The correct way to rewarm a frostbitten extremity is to immerse it in a constant-temperature water bath held at 42°C. Although this temperature has been found to give the best results, a degree or two of latitude either side of that figure is permissible (110° to 118°F.). This method of rewarming is painful to the patient and may appear to produce a deterioration in his condition, for the thawing of the area produces a peripheral hyperemia around the area of tissue death, and blebs or bullae may appear beneath the superficial epithelial layers. Sedatives are frequently indicated to control the discomfort during the rewarming process, and are often indicated

Dr. Flatt, a fellow of the American and of the Royal Colleges of Surgeons, is an associate professor of orthopedic surgery at the S.U.I. College of Medicine.

to allay fear and to control the more irrational patients.

Although there is little clinical difficulty in establishing the diagnosis of frostbite, there are great difficulties in predicting the ultimate extent of the injury. In the past, there have been attempts to classify frostbite injuries in degrees similar to those advocated for burns. Such estimates, however, are almost invariably wrong, and in fact serve no useful clinical purpose. Modern-day classification of burns has been narrowed to either partial or complete epithelial loss, and frostbite should be classified similarly, either as superficial or deep tissue death. Mills points out that even the predictions of physicians experienced in the care of frostbite are not very often borne out by the final results. In fact, even the classification of frostbite injuries as either superficial or deep has little clinical value except in the mildest cases. Initial treatment and subsequent care are identical in all cases, and there is no evidence that therapy should be varied according to the degree of the frostbite.

A factor that has proved to be of help in the prognosis has been body temperature. Where there has been a marked fall in general body temperature, the local tissue damage does appear to have been greater than in cases where the body temperature has been maintained. It therefore is reasonable to give a very guarded prognosis in patients showing marked hypothermia.

IMMEDIATE CARE

Once the affected sites have been thawed, the clinical problem becomes one of preventing infection in the area and maintaining circulation to the devitalized tissues. Occasionally, there are associated injuries such as fractures or dislocations that may complicate therapy. Treatment of such conditions should border on the conservative, and every effort must be made to maintain circulation in the area. Dislocations should be reduced and fractures placed in reasonable alignment, but maintenance of those positions by traction, tight casts or even fixation by open operation may compromise the circulation and should be avoided.

It is vital to explain to the patient that the key to subsequent therapy is "masterly inactivity," and that he should expect areas of necrosis and gangrene to appear. He must be made to realize that superficial death of tissues is inevitable and that this death will be more widespread than that which is occurring in the deeper tissues. Epithelium will survive beneath the superficial eschar, provided that it does not become infected, and when separation occurs, the area of deep or full-thickness loss will be much less than could have been assumed by judging the extent of the superficial necrosis.

As in any other gangrenous state, it is of great importance to prevent the onset of secondary infection. The necrotic areas should be exposed so that an eschar is formed, and they should be kept dry at all times. Deliberate puncture of the blebs should be avoided, since it would convert a sterile area into a potentially infected one. The blebs should be allowed to dry and absorb by themselves, and they will need careful nursing attention, in the early days, to prevent accidental rupture. Routine chemotherapy is unnecessary. Antibiotics should be reserved for use in cases in which secondary infection has become established, and in which cultures have shown that sensitive organisms are present.

Active exercises should be encouraged, since they will help to prevent stiffness, will improve muscle tone and will encourage local circulation. Mills says that whirlpool baths are helpful in the later stages of intermediate care because they appear to increase local circulation, to cause a rapid diminution of local edema and to encourage exercising because of the support supplied by the water.

Sympathetic block and sympathectomy have been advocated as helpful in the early treatment of frostbite, but there does not appear to be any good evidence that such treatment is of use. de Jong and his colleagues reported a series of sympathectomies performed on frostbite victims during the bad winter of 1960-1961 in New York City. Unfortunately, the data that they presented at the College of Surgeons meeting did not, to my way of thinking, appear to justify their conclusion that early regional sympathectomy promotes healing, or that amputation in cold injuries is unnecessary if local therapy is assiduous. I would agree with their recommendation that long-term follow-up should be maintained so that it can be determined whether the late sequelae of frostbite can be avoided through early sympathectomy.

Of equally doubtful value are vasodilator and anticoagulant drugs. As has been pointed out, the initial trauma of the freezing has defined the area of damage, and such drugs are unlikely to have any effect upon subsequent thrombosis of blood vessels or vascular sludging within this area.

As the days pass, the area of definitive loss becomes established, and the superficial layers of the periphery begin to separate. At that point, whirlpool baths are often particularly helpful in performing a very gentle debridement. Only those tissues which have already begun to separate should be removed. Wholesale debridement of tissue should never be performed, and debridement in the early days after freezing, before the area of loss has been defined, is absolutely contraindicated. It must be repeated that the extent of survival of deep tissues is astonishing and usually far exceeds the physician's early expectations. Mills and his colleagues have stated that "we consider it overwhelmingly demonstrated here that of all the factors in the treatment of frostbite which may influence the result, premature surgical intervention by any means, in any amount, is by

far the greatest contributor to a poor result of any variable analyzed."

Although wholesale debridement has been condemned, it should be pointed out that limited excision of eschar and dead tissue can be helpful under certain circumstances. The exposure treatment of burns of the extremities carries with it the risk of strangulation of blood supply by contraction of circumferential scarring or eschar formation. The same problem can develop during the first few weeks of frostbite healing. Thus, the circulation of a digit and the blood supply to the intrinsic muscles of hand or foot can be restricted. Limited excision of eschar will ensure relief of the constriction and the preservation of as good a blood supply as possible to those areas.

Active movement of digital joints is sometimes prevented by tight eschar, and a unilateral or bilateral incision over the joint may allow a greatly increased range of movement. However, every time the protective layer of dry eschar is broken, the deeper poorly-viable tissues are exposed to the risk of an infection that may compromise their healing.

When frank infection is demonstrable, one should treat it along the standard lines of culture, using the appropriate antibiotic, draining any pockets of pus and excising frankly gangrenous areas. Surgical treatment of the infection should tend to be conservative, and should be directed more at helping the local tissues combat the infection than at radically excising the whole infected area.

LATE CARE

If actual tissue freezing has occurred, it appears inevitable that there will be some persistent demonstrable deficiency, varying from frank amputation to digital-pulp atrophy and sensory disturbances.

When digits have been killed by freezing, they will eventually demarcate and drop off, and there should be no hurry in aiding their amputation. The optimum time for surgical interference is during the third month (60-90 days) after freezing. By this time, all tissues that can possibly survive will have reestablished their circulations, and amputation should be performed at the most distal level possible. Although the bone should be cut back to a bleeding end, all possible length should be retained. One should place small skin grafts on granulating stumps, rather than cut back the bone far enough to allow the use of formal skin flaps. If ascending, uncontrollable infection forces amputation at a higher level, a guillotine-type amputation must be done, and the stump allowed to granulate. Skin grafts to the granulating area act as an excellent dressing, provide early epithelial cover and reduce the amount of scarring. But they do not usually preclude a later, formal revision of the stump.

The intrinsic muscles of the hand and foot are particularly sensitive to periods of ischemia. Many cases of frostbite will show varying degrees of fibrosis of the muscle bellies as a result of this ischemia. Such interference with intrinsic muscle action can seriously handicap both hand and foot function, and appropriate orthopedic procedures may be necessary in order to correct the functional handicap.

In Iowa, we tend to see more residual disability from frostbite of the hands than of the feet. Circulatory deficiencies, sensory disturbances and pulp atrophy of the fingers are great handicaps to people whose occupations force them to put their hands in jeopardy during subsequent winters.

Although early proximal sympathectomy does not appear to help the treatment of frostbite, it is possible that late distal sympathectomy may have some value. The operation should be considered experimental, and long-term results are not yet available. In two such cases in recent years, we have been able to relieve the symptoms to a considerable extent and to prevent amputation by performing a distal sympathectomy at the level of the origin of the digital arteries in the palm. Such surgery appears to paralyze the tone of the digital arteries permanently, and we have been able to show that increased skin temperatures have been maintained through a subsequent winter.

CONCLUSION

In conclusion it should be emphasized that the care of severe cases of frostbite is a long-drawn-out process calling for the absolute cooperation of the patient, nursing of the highest order, and considerable therapeutic restraint on the part of the physician. In these cases, the patient is confined to bed for many weeks, and has to rely on others for help in all toilet necessities and recreational activities. It is inevitable that such patients will go through periods of despondency which can be relieved only by the devoted care of nurses and physicians. Surgical procedures are rarely indicated in the preliminary stages of frostbite care. Early debridement could be dangerous, and early amputation would be prodigal. Both must be postponed unless the indications are overwhelming.

ACKNOWLEDGEMENT

I should be held entirely responsible for the views expressed in this paper, but I wish publicly to record my grateful thanks to Dr. William J. Mills, Jr. and his colleagues for their permission to quote freely from their publications. Their papers, together with information I gained during conversations with Dr. Mills, have formed the basis for this review.

REFERENCES

1. de Jong, P., Golding, M. R., Sawyer, P. N., and Wesolowski, S. A.: Recent observations on therapy of frostbite. A.C.S. Surgical Forum, **12**:444-445, 1961.
2. Meryman, H. T.: Tissue freezing and local cold injury. Physiological Reviews, **37**:233-251, (Apr.) 1957.
3. Mills, W. J., Jr., and Whaley, R.: Frostbite: experience with rapid rewarming and ultrasome therapy. Part I. Alaska Medicine, **2**:1-4, 1960.
4. Mills, W. J., Whaley, R., and Fish, W.: Frostbite experience with rapid rewarming and ultrasome therapy. Part II. Alaska Medicine, **2**:114-124, 1960. Part III. *Ibid.*, **3**:28-36, 1961.

Urological Management of Patients With Spinal Cord Injury and Disease

DIETER KIRCHHEIM, M.D., and
WILLIAM D. DeGRAVELLES, JR., M.D.
Des Moines

MUCH PROGRESS HAS BEEN MADE over the past 20 years in the care of patients with spinal-cord injury and disease. Antibiotics and other medications, plus the proved success of physical rehabilitation measures, have reversed the pessimism that formerly prevailed among the personnel and in the institutions caring for these patients. Present-day concepts demand active, aggressive treatment to bring these people to maximal functional and health status culminating, in many instances, in independent living and, ultimately, employment.

Because of the number of body systems affected by spinal-cord damage, successful management of these patients can be achieved only through the cooperative efforts of a team of medical and surgical specialists with help from certain paramedical personnel. Urological management and follow-up are very important to these individuals, since their longevity and general state of health are often governed by the health of their kidneys and urinary tracts. All of the benefits of early medical and surgical care and of a physical rehabilitation program can be lost through the unexpected advent of renal insufficiency, months or years after the injury or after the onset of the spinal-cord disease.

It is hoped that this paper will help the nonurologist to understand the urological problems seen in the paraplegic or quadriplegic, so as to arrive at an early diagnosis in patients of these types, and thus to prevent serious urinary complications in many instances.

The case reports that will be presented are of patients seen and treated at the Younker Memorial Rehabilitation Center of Iowa Methodist Hospital, Des Moines. All spinal-cord-injury patients admitted to the Center undergo complete urological work-ups. The physical rehabilitation program is begun only after the urological survey has been completed, after consultations with other specialists have been held, as indicated, and after the necessary surgical and medical procedures have been accomplished or are well under way.

NEUROANATOMY AND NEUROPHYSIOLOGY OF MICTURITION

The following is just a short outline of the pertinent facts about the neuroanatomy and neurophysiology of micturition. For more detailed information, the reader is referred to the excellent monographs by Emmett[3] and Bors.[1]

In contrast to skeletal muscle, the smooth-muscle structures of the urinary conducting organs (renal calyces and pelves, and ureters) can function in the apparent absence of innervation. Thus, spinal-cord injury or disease seems to have no primary effect upon the functions of the kidneys and ureters. However, with its internal and external sphincter

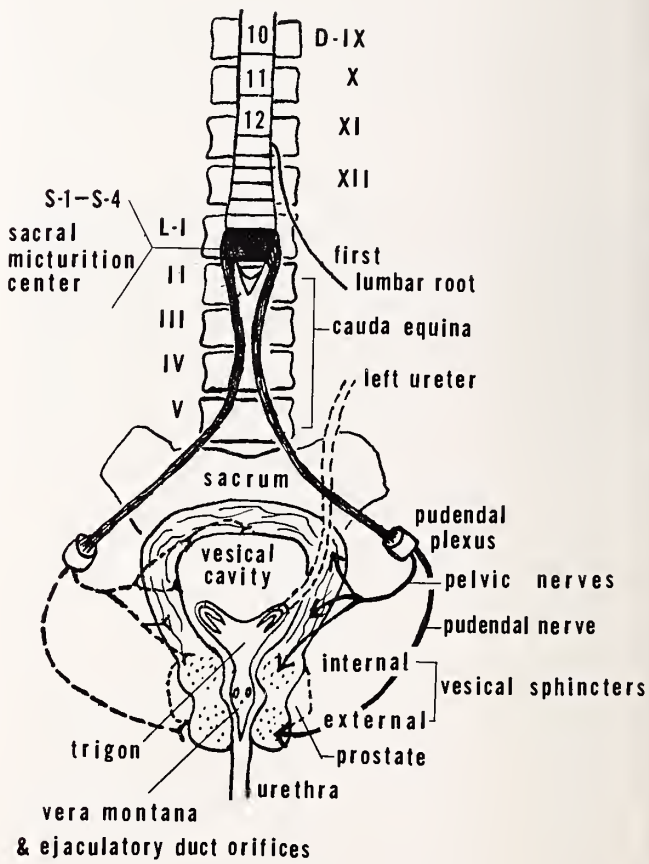


Figure 1. Innervation of bladder (detrusor muscle) and of the internal and external sphincters. The sensory afferents are on the right hand side and motor nerves on the left hand side of the sketch.

mechanism, the bladder contains both smooth and skeletal muscles, which are innervated by autonomous and somatic fibers. Figure 1 depicts the present concept of the innervation of the bladder and its sphincters. The sympathetic innervation (presacral nerve) has been omitted, since stimulation or interruption of these fibers can give controversial results, and since either one seems to have much less importance than does innervation by the parasympathetic pelvic and the somatic pudendal nerves.

Motor Nerves. The parasympathetic pelvic nerves originate from horns of S2-4. These consist of pre- and postganglionic nerves which synapse in intra- or extramural bladder ganglia. They form loose bundles and cannot be anatomically identified as distinct nerve cords. They innervate the detrusor muscle of the bladder and the internal vesical sphincter, which actually is formed by an interlacing of detrusor muscle fibers at the vesical neck.

The somatic pudendal nerves also originate from horns of S2-4, and reach the external sphincter muscle and the pelvic floor muscles via Alcock's canal.

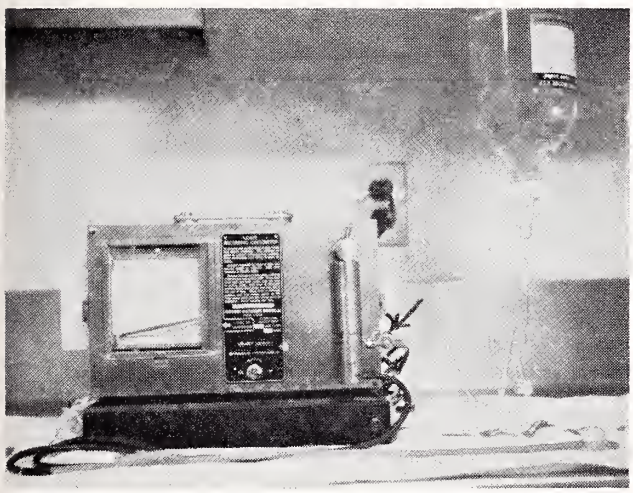


Figure 2. Lewis recording cystometer. Saline is run from a 1,000 cc. intravenous container at a level of 45 cm. above the level of the symphysis into the manometer through the inlet valve indicated by the arrow. It leaves the manometer at the outlet valve (x), and flows through a rubber tube to the Foley catheter in the patient's bladder. Here, the infusion bottle has been lowered so as to permit its inclusion in the picture. Instead of this refined apparatus, a simple water manometer like the one used in spinal fluid manometry can be employed. It would be connected by a glass Y-tube to the infusion bottle on one side and to the Foley catheter on the other.

Sensory Nerves. (1) Exteroception. Afferents of mucosal sensation to touch and pain which reach the spinal cord via spinal ganglia and posterior roots are contained within the parasympathetic pelvic nerves and, to a much lesser extent, within the sympathetic presacral nerves.

(2) Proprioception. The desire for micturition originates in the proprioceptors of the detrusor either when the intravesical pressure has reached the threshold of the detrusor's ability to stretch (tone), or when it is increased by the volitional intent to void. The impulses are mediated via pelvic nerves, spinal ganglia, posterior sacral roots, and spinothalamic tracts to the thalamus, subcortex and cortex. The sensation that micturition is imminent is probably caused by stimulation of the proprioceptors in the striated pelvic-floor musculature (external sphincter) and conducted along the sensory fibers of the pudendal nerves.

Reflex Centers. Peripheral intra- and extramural centers maintain bladder tone. They are unable to initiate a true voiding contraction.

The sacral micturition center is located in the S2-4 segments of the spinal cord, which corresponds to the level of vertebrae L1 to L2. Reflex arcs consist of exteroceptive mucosal and proprioceptive muscular afferents and autonomic efferent limbs (Figure 1). In the absence of the inhibitory fibers from the brain—physiologically in the infant and pathologically in patients with suprasacral spinal-cord lesions—the sacral micturition center regulates voiding (reflex detrusor contractions, no voluntary control).

The supraspinal (cerebral) centers affect micturition chiefly by inhibiting the sacral reflex arc. Voluntary cerebral release of this inhibition permits the sacral reflex to take place and results in a voiding detrusor contraction. The whole process of cerebral coordination, integration and facilitation is actually much more complex than we have indicated, but it is too controversial for presentation here. The striated muscles of the external vesical sphincter and the pelvic-floor muscles are under the volitional control of the motor cortex.

In the normal person, a voiding detrusor contraction results in a practically complete emptying of the bladder, leaving less than 30 cc. of residual urine. He is able to initiate, postpone, interrupt and restart voiding at will. This ability requires not only intactness of the above-described bladder nerves but also normal integration and coordination of the reciprocal activities of the expulsive (detrusor) and retentive (sphincter) forces, which are regulated by the cerebral and sacral micturition centers.

Cystometry. By plotting intravesical pressure against intravesical volume, one can obtain a cystometric graph. This can be done easily by using a simple water manometer attached at right angles to the outflow tubing of an indwelling Foley catheter. An aneroid manometer with a revolving drum and an automatic writer (Figure 2) is somewhat more refined and easier to use. Excretory cystometry is a more physiological method than retrograde cystometry, since the patient's own urine flow is used to measure intravesical pressures. However, that method is time consuming, and leaves one in

doubt as to the exact amounts of urine present in the bladder at various pressure readings. In retrograde cystometry, the bladder is gradually filled either by a continuous Murphy drip or by interrupted increments of 50 cc. of saline. The cystometrograph records the intravesical pressures (tones) during the filling of the bladder. Voluntary detrusor contractions (at 40 to 120 mm. Hg) or uninhibited detrusor contractions (always pathological except in the infant) can be seen as spikes above the gradually rising graph of bladder tone. The rate of the Murphy drip is much faster than the rate of the patient's own urine flow from the kidneys. This, together with the irritation of the indwelling Foley catheter, may cause artifacts, but cystometrograms, especially serial ones, provide one a good idea of the neurological function of the bladder.

If, instead of a slow, continuous drip, the interrupted 50 cc. increments of saline are used, the sudden and fast inflow of each such amount raises the manometric recording artificially. In the normal bladder, however, the intravesical pressure returns to the previous "tone" or slightly above it within seconds after the 50 cc. increment of saline has entered the bladder and the inflow valve has closed. The normal bladder adjusts to increasing intravesical volume by a very gradual rise in intravesical pressure ranging from a few millimeters of mercury at low fillings to 10 to 20 mm. Hg at the time of the desire to void, which usually occurs at a filling of between 200 and 400 cc. In a neurogenic bladder, the viscus no longer can adjust quickly to sudden changes in volume, and this inability is reflected in a slower return to the preexisting pressure after a 50 cc. saline increment and the shutting off of the inflow valve of the Murphy drip (Figure 3C).

Figure 3A represents three normal cystometrograms. Sensations such as fullness, first desire to void, urgency and discomfort are within normal limits. The pressure curves are relatively smooth, gradually rising graphs, indicating normal bladder tone and the absence of "uninhibited contractions" of the detrusor. The vertical dotted lines at the time of desire to void record the pressure spikes reached by the detrusor contractions, which would result in voiding and complete emptying. This emptying requires not only normal functioning of the detrusor but also proper coordination by the higher micturition centers, causing reciprocal relaxation of the sphincters and pelvic-floor muscles. Initiation and control are normal, and there is "no" (i.e., less than 30 cc.) residual urine.

Uninhibited contractions, as in a case of spinal-cord transection at the level of D6 (Figure 3B) are always pathological and are caused by a lack of cerebral control over the sacral micturition center. These uninhibited contractions may occur frequently at low fillings of the bladder, resulting in almost continuous spurts of urine, or they may

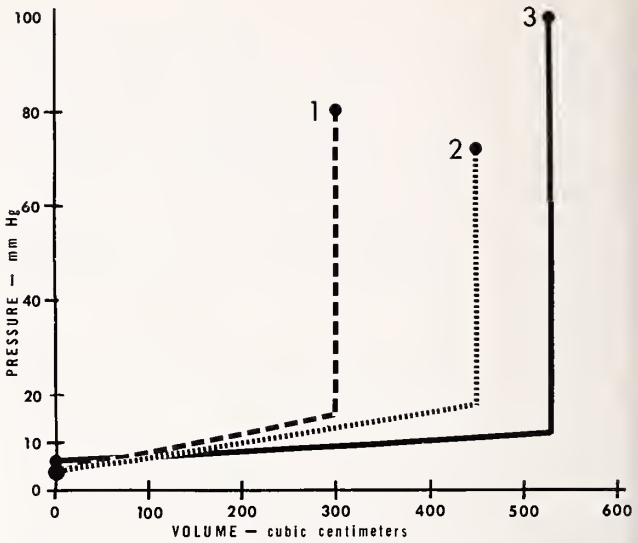


Figure 3A. Three cystometrograms of three patients with normal bladder function. Bladder tones (almost horizontal lines) stay within narrow pressure limits during filling of bladder (0-20 mm. Hg). Perpendicular lines are voluntary voiding contractions (between 60 and 120 mm. Hg). Note absence of uninhibited detrusor contractions.

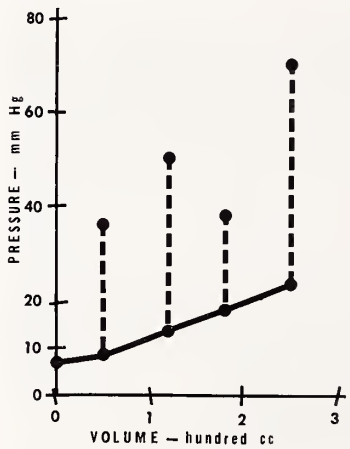


Figure 3B. Patient with spastic neurogenic bladder. Cord lesion at D6. The bladder tone rises more sharply, and there are four well-defined uninhibited detrusor contractions at between 50 and 250 cc. fillings. This patient will manifest clinically "active" incontinence.

take place at intervals, occurring at fillings from 100 to 250 cc. and manifesting a more efficient "automatic reflex bladder."

If the spinal-cord injury is at a lower level and has destroyed the sacral micturition center or its afferents and efferents at the level of the cauda equina, voiding is controlled solely by the peripheral intra- and extramural vesical ganglia, and by the inherent properties of smooth muscle itself (autonomous bladder). For reasons not yet definitely explained, this usually results in a very hypertonic (hypertrophied, trabeculated) bladder, with inefficient detrusor contractions and large amounts of residual urine. However, since these

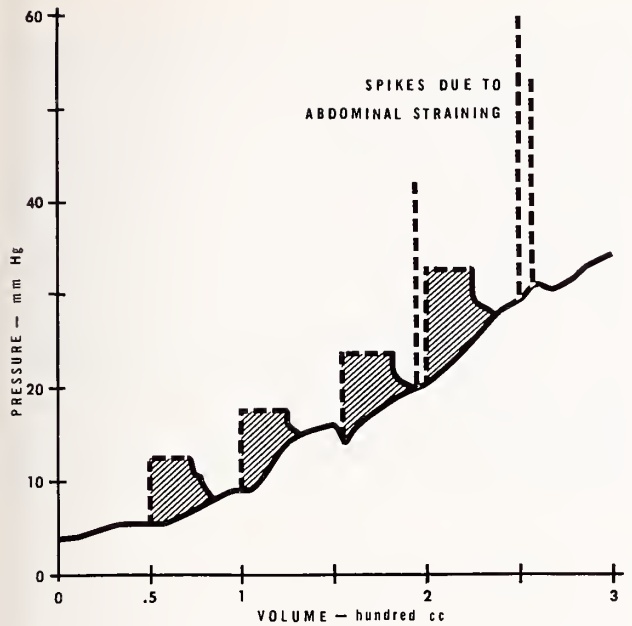


Figure 3C. Patient with hypertonic neurogenic bladder due to low spinal-cord injury at level L 1 and L 2. The shaded areas are pressure rises from 50 cc. infusions, and are thus not part of the pressure curve of the detrusor. Normally, the descending limb of the shaded areas is as perpendicular as the ascending limb, which corresponds to the opening and closing of the infusion valve. However, in many neurogenic bladders the detrusor has lost its ability to adjust quickly to changes in volume, and thus the pressure curve returns only gradually to the base line in this graph. At a filling of 200 cc., there is an uninhibited detrusor contraction. This patient has no bladder sensation, and is unable to void normally, but he can empty his bladder by abdominal pressure (two spikes of 50-60 mm. Hg at a filling of 250 cc.).

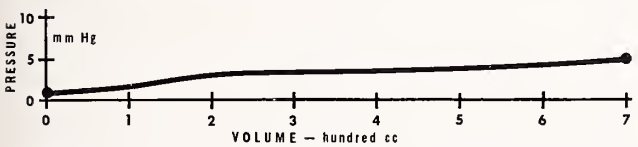


Figure 3D. Hypotonic or atonic neurogenic bladder following shortly after spinal-cord injury. There is no bladder sensation of filling, and bladder tone stays below 5 mm. Hg up to a filling of 700 cc. No uninhibited reflex contraction, and complete detrusor paralysis on attempted voiding or straining.

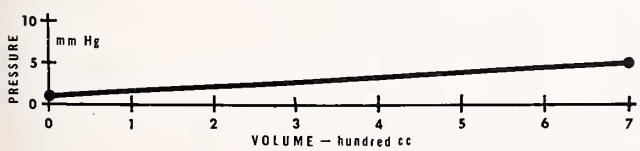


Figure 3E. Hypotonic neurogenic bladder of a patient with tabes dorsalis. Similar to the acute phase of spinal-cord injury represented in 3D. The sensory afferents of the detrusor and posterior spinal cord have been destroyed, and the bladder is flaccid.

lesions are mostly at the lower dorsal or lumbar spine, the innervation of the abdominal muscles remains intact, and some of these patients are able to initiate voiding by voluntary contractions of their abdominal muscles, supplemented by manual abdominal pressure (Crede). Figure 3C is a cystometrogram of such a case.

UROLOGICAL MANAGEMENT OF ACUTE AND CHRONIC STAGES OF SPINAL-CORD INJURY*

The acute or "shock" stage of the bladder in spinal-cord injury is characterized by complete loss of reflex activity. Figure 3D shows a typical cystometrogram of a patient shortly after transection of the spinal cord at D6, resulting in complete motor and sensory paralysis. Depending upon the severity of the spinal-cord lesion and other factors, reflex activity below the lesion may reappear after lengths of time varying from days to months. When this occurs, the patient is said to have entered the "chronic" or "recovery" stage of vesical function. Maximal recovery may take as long as 12 to 16 months following the injury. Treatment during this period is aimed at preventing complications such as urinary-tract infections, bladder contracture and stone formation, and at facilitating the return of bladder function through supportive measures (bladder training). Corrective surgery (transurethral resection of vesical neck and prostate, nerve resections, plastic procedures) is not undertaken until no further recovery of bladder function is expected.

To measure the return of bladder function, cystometrograms are done every four to eight weeks. As soon as the patient is over the initial traumatic episode and has stabilized medically, a complete urological work-up is done, including urinalysis, urine culture and sensitivities, B.U.N., intravenous pyelogram, retrograde cystogram and, if indicated, cystoscopy, retrograde pyelography and cinefluoroscopy.

Following spinal-cord injury and during the period of recovery, the urological management consists of:

1. *Continuous urethral catheter drainage to prevent overdistention of the paralyzed bladder.* When the cystometrogram shows evidence of good reflex activity, bladder training is begun (see No. 6, below).

2. *High oral fluid intake to promote drainage and to decrease the incidence of urinary calculus formation (3,000-4,000 cc. daily).*

3. *Early mobilization of the patient to combat demineralization and improve urinary drainage.*

4. *Proper catheter care.* The Foley urethral catheter is changed weekly or more often if necessary, and is irrigated twice daily with normal saline or one of the antiseptic irrigating solutions such as 2 per cent boric acid or 1:10,000 potassium permanganate. To decrease the incidence of peno-scrotal-angle fistulas, the Foley catheter is taped to the abdomen, thus straightening the curvature of the anterior urethra at the peno-scrotal angle. If the

*This is the management used by Dr. Kirchheim and his associates Drs. C. W. Latchem and E. T. Burke. Urological management of spinal-cord disease is similar.

Foley catheter becomes easily encrusted with calcareous precipitations or if urinary calculi are forming, we use 10 per cent renacidin solution to irrigate the catheter. Using renacidin may also cut down the frequency of catheter changes. As is indicated in No. 7 of the following case reports, early urinary calculi may be softened, broken up and dissolved through renacidin irrigation. For nephrostomy or ureterostomy tubings, a weaker (5 per cent) renacidin solution is recommended.

5. *Prevention and treatment of urinary-tract infections.* Most patients with indwelling catheters harbor pathogenic microorganisms in their urine, most commonly strains of the E. coli group, Aerobacter, Proteus, Pseudomonas or enterococcus (Str. faecalis). It is practically impossible to sterilize the urines of these patients for any length of time. In spite of bacteriuria, the urine remains clear, and microscopically contains fewer than 10-20 white blood cells per high-power field. Evidently a local tissue-immunity develops. If these bacteria cross the local tissue barrier and cause renal and/or systemic infection characterized by increased pyuria, fever and chills, an appropriate wide-spectrum antibiotic is indicated. According to the sensitivity studies and clinical responses in our experience, the most frequently useful antibiotics have been Declomycin (demethylchlortetracycline), Chloromycetin (chloramphenicol), Furadantin and the other tetracyclines (Cosa-tetracyn, etc.). In resistant proteus and pseudomonas infections Kantrex (kanamycin), 500 mg. intramuscularly twice daily, and Coly-mycin, 150 mg. intramuscularly daily, gave good results in several cases. Three severe staphylococcal infections that were resistant to penicillin, staphylocillin, erythromycin and Albamycin (novobiocin) responded well to Vancocin (vancomycin), 500 mg. in 250 cc. of saline intravenously every six hours. If the spiking fever and chills persist in spite of appropriate antibiotic therapy, one must look for an obstructive, stasis-producing lesion such as a blocked catheter, bladder-neck obstruction, stones, ureteral kink, stricture, diverticulum, perinephric abscess or obstruction by extrinsic pressure. Once the obstruction has been relieved, the signs of pyelonephritis and systemic infection usually subside within several days.

We do not favor the continuous administration of wide-spectrum antibiotics as a prophylactic measure. If, in spite of the above measures, the patient has frequent urinary-tract infections, the less expensive sulfonamides (Gantrisin, Thiosulfil Forte) and Mandelamine are preferable for intermittent prophylactic therapy. In contrast with the wide-spectrum antibiotics, these drugs do not destroy the normal bowel flora, and do not cause staphylococcal overgrowth of the intestines with severe complications such as staphylococcal (pseudomembranous) enteritis. The pH of the urine is checked at intervals. The commonest urinary calculi, especially in an infected urine, are calcium, ammonium phosphate and carbonate compounds, which precipitate more easily in alkaline urine. Several urinary pathogens, chiefly the proteus group, split urea and form ammonia, thus rendering the urine alkaline. In some instances, the administration of Mandelamine (1.0 Gm. q.i.d.) and ammonium chloride (0.5-1.0 Gm. q.i.d.) will reduce the proteus infection and shift the urinary reaction toward the acid side. Some of the newer antibiotics such as kanamycin (Kantrex), Coly-mycin and Seromycin may be helpful against certain proteus strains. Some cases, however, are refractory to acidification and antibiotics. Since prolonged acidification therapy with ammonium chloride may cause demineralization and osteoporosis, it is preferable to use this drug only intermittently. Acid ash diets have been disappointing, and diet restrictions are hard on these patients.

6. *Bladder training.* As soon as the cystometrogram shows recovery of detrusor function, the urethral catheter is clamped and released at one- to two-hour intervals during the daytime. This is done in order to distend the bladder, thus preventing contracture, and to induce certain rhythmic reflex contractions. This "simplified bladder training" has replaced the more complicated forms of tidal drainage at many institutions. During periods of urinary-tract infection with marked pyuria and fever, and in patients with persistent ureteral reflux, the catheter should *not* be clamped.

As soon as there is a significant amount of recovery of detrusor function, as determined by serial cystometrograms, an attempt is made to remove the urethral catheter. After its removal, a variety of impaired bladder functions can be seen. At one end of the spectrum is the patient with an incomplete cord lesion who regains normal or almost normal bladder function within several months after injury. At the other end is the patient with a more severe spinal-cord involvement who urinates involuntarily, in frequent spurts, who stays continuously wet and who retains urine. Such an individual is subject to urinary stasis, infection and stone formation. There is also the occasional patient who is unable to void at all because of hypertrophy and spasticity of the internal and/or external vesical sphincter.

SYMPTOMATOLOGY

Because there are various forms of neurogenic vesical dysfunction, a discussion of the symptomatology seems to be most practical from the therapeutic standpoint.

Urinary incontinence. During the acute spinal-shock stage, with complete motor and sensory paralysis of the bladder, "overflow incontinence" occurs. In the recovery stage, however, urinary incontinence is caused by uninhibited reflex contractions of the detrusor due to loss of cerebral inhibition and coordination ("active incontinence")

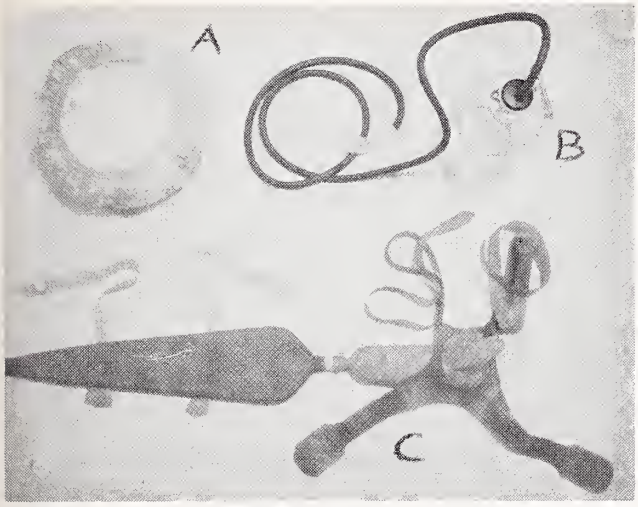


Figure 4. Urinary continence devices: A. Shower cap filled with waste cotton. B. Condom catheter connected by rubber tubing to bedside drainage bottle with sterile top. C. External rubber urinal that fits over the penis, with rubber leg bag to collect urine.

and *not* by paralysis of the sphincters ("passive incontinence").

If the uninhibited reflex contractions are spaced more than an hour apart and are sufficient to empty the bladder (automatic reflex bladder), some patients may anticipate them and initiate urination by straining, and thus stay relatively dry. The majority of complete and some incomplete cord-lesion patients will require an external continence device (condom catheter or rubber urinal) (Figure 4). The advantages of using such a device rather than permanent urethral or suprapubic catheter drainage are:

1. Foreign-body irritation, incidental to the use of a catheter, can be avoided
2. The incidences of urinary-tract infections and stone formation are reduced
3. The patients are always glad to get rid of indwelling catheters and can manage the external devices more easily and more satisfactorily. During the night, they either put the metal urinal between their thighs or use a shower-cap arrangement (i.e., sleep in a prone position, with the penis in a waste-cotton-filled plastic shower cap) (Figure 4).

"Urgency incontinence" is a milder form of incontinence. It may be caused by cystitis, with increased vesical irritability, and may disappear after the infection has been eliminated. In other instances, such as incomplete spinal-cord lesions, it is caused by only partial interference with cerebral inhibition. These patients feel a sudden urge to void every few hours, and are unable to postpone micturition until they can reach a suitable place to urinate. Bladder sedatives and parasympathicolytics such as banthine, 50 mg. q.i.d., may be beneficial. Sometimes, also, these patients will have to wear external urinary continence devices to keep from wetting themselves.

Residual urine. Incomplete vesical emptying in the patient with spinal-cord injury or disease is the result of impaired coordination of the expulsive and retentive forces, with hypertrophy and spasticity of the internal and, at times, of the external vesical sphincter. The higher the residual urine and the smaller the vesical capacity, the more inefficient the bladder becomes. The majority of complete and many of the incomplete lesion patients carry varying amounts of residual urine, determinations of which should be done at intervals, since false values may be obtained and since the residual gradually decreases as the bladder recovers. Transurethral resection of the vesical neck and prostate, and in rarer instances of the external sphincter, and/or the various nerve blocks and resections (pudendal, sacral) will eliminate residual-urine accumulation in most patients. These surgical procedures, however, should be postponed until no further recovery of bladder function is expected.

Initiation of urination by abdominal straining. In low spinal-cord lesions which destroy the sacral micturition center at S2-4, there should be no automatic reflex activity of the detrusor, and thus no "active incontinence" from uninhibited detrusor contractions. These patients may be able to strain and expel urine by contractions of their normally-innervated abdominal muscles (lesion below the motor horns) supported by manual abdominal pressure (Credé). Most of them have substantial amounts of residual urine because of hypertrophy and spasticity of the internal vesical neck, but this is amenable to treatment by transurethral resection. In a satisfactory case of this sort, the patient will stay dry and can initiate urination by abdominal straining every three to six hours.

In this group, there are occasional patients who can initiate urination in this way, even though their spinal-cord lesions are above the sacral micturition center. Such cases are theoretically inexplicable.

Complete urinary retention. This group includes only about five per cent of cord bladders. The complete retention is due to marked spasticity of the external or, rarely, of the internal vesical sphincter. Treatment is discussed below, in case report No. 10 (W. P.).

Ureteral reflux. This results from incompetency of the normal uretero-vesical valve mechanism. When one does a retrograde cystogram, the injected contrast medium will fill not only the bladder but also the ureter and the collecting system of the respective kidney.

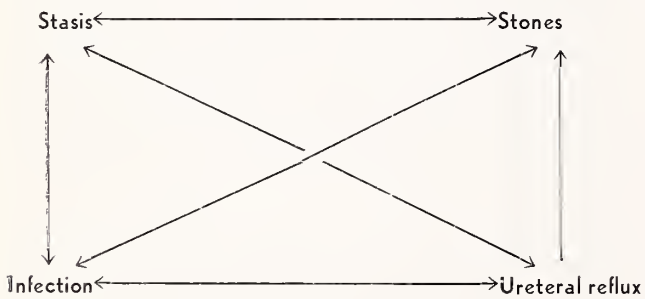
The incidence of clinically significant ureteral reflux in neurogenic bladders is between five and 15 per cent. The difficulty is caused by several factors such as urinary infection, vesical spasticity, deformity and hypertrophy. At the time of the initial urological work-up, and at intervals later on, retrograde cystograms are done to de-

termine the competency of the uretero-vesical valve mechanism. Patients with complete ureteral reflux tend to have repeated urinary-tract infections and progressive destruction of the affected kidney by hydronephrosis and pyelonephritis. Milder cases of ureteral reflux may be treated by catheter drainage, antibiotics and elimination of the vesical-neck obstruction and residual urine by transurethral resection. In the more severe and persistent cases, a "tunnel and cuff ureteroplasty" combined with a V-Y vesical-neck plasty may be necessary to restore the competency of the uretero-vesical valve mechanism and at the same time to remove the vesical-neck obstruction.

Figure 5A shows the normal anatomy of the uretero-vesical junction. When the bladder becomes filled, the urine volume compresses the portion of the intramural ureter that runs almost parallel to the trigon. In Figure 5B, the valve mechanism has been abolished (ureteral reflux), and the ureter courses in an almost straight line through the wall of the bladder. It is also frequently dilated (golf-hole appearance at cystoscopy). The surgical correction and restoration of this valve mechanism is shown in Figure 5C. The retrograde cystogram of case No. 4 (C. O.), reproduced in Figure 6, shows marked bladder deformity and hypertrophy on the left side, with complete ureteral reflux on the same side but none on the side with normal bladder contour.

FOLLOW-UP EXAMINATIONS

After optimal bladder function has been accomplished, the patients are followed up urologically for the rest of their lives. During the first five years, intravenous pyelograms and retrograde cystograms are done every year to discover any deterioration in renal function or any complications. The vicious circle of urological complications is illustrated in the following diagram:



If complications are present, urological check-ups are done more frequently. Even if bladder and kidney function have been stable over a period of five years, the patient should continue to have urinalyses and intravenous pyelograms every two or three years.

In from 10 to 20 per cent of patients, all efforts to make them catheter-free remain unsuccessful, chiefly because of persistent residual urine, ureteral reflux or urinary infections.

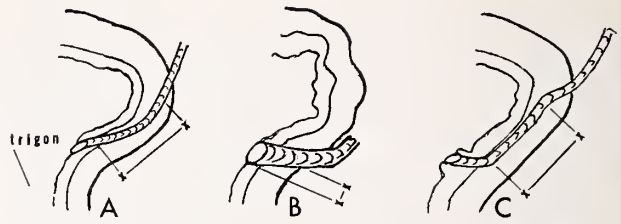


Figure 5. A. Normal anatomy of uretero-vesical junction, and course of ureter through bladder wall. Note length (x—x) of intramural portion of ureter through bladder muscle, which is chiefly responsible for competence of the uretero-vesical valve mechanism. B. Neurogenic bladder with deformity and spasticity of detrusor muscle deranging the normal anatomy as depicted in A. In addition, the lower ureter is dilated, and the ureteral orifice is patulous and gaping. The intramural portion of the ureter (x—x) is considerably shortened. The result is ureteral reflux. C. Correction of the condition shown in B, by means of a "tunnel-and-cuff ureteroplasty." Note the reestablished length of the intramural portion of ureter through the submucosal tunnel (x—x).

Patients with permanent urethral or suprapubic catheters should be examined more often, and proper catheter care is of utmost importance, since such individuals have a greater than normal tendency to develop renal complications and insufficiency. Case report No. 12 (C. S.) is a good example of how a well-rehabilitated paraplegic in a good professional position has developed severe urological complications, with precarious renal reserve, 14 years after his initial cord injury. The complications probably could have been prevented by urological follow-up.

Most female patients whose urinary incontinence cannot be controlled wear permanent urethral catheters, since external urinary-continence devices presently available have not proved altogether satisfactory.

In the final section of this paper, case reports will be presented to demonstrate some of the diverse problems encountered in the management of patients with neurogenic bladders that resulted from spinal-cord injury or disease.

CASE REPORTS

Case No. 1. L. H., 21 years of age, was admitted to I.M.H. on October 6, 1960. On June 18, 1960, an automobile accident had produced a compression fracture of his D11 xertebra, with resultant spastic paraparesis (incomplete spinal-cord lesion). His abdominal muscles were intact and of good contractility. The patient was on urethral catheter drainage for a period of four weeks following the injury. The catheter was then removed, and he was able to void large amounts of urine by abdominal straining every eight to 12 hours, with less than 100 cc. of residual urine. In between his voidings, he was continent. The B.U.N. was 12 mg. per cent, and an intravenous pyelogram showed normal upper urinary tracts and a large, smooth bladder. A retrograde cystogram showed no ureteral reflux.

On November 9, 1960, a retrograde cystometro-

gram showed a hypotonic bladder with a capacity of over 800 cc. There were no uninhibited detrusor contractions and only 50 cc. of residual urine. At a bladder filling of 800 cc., the patient was able to raise the intravesical pressure, by abdominal straining, to 50 mm. Hg and to expel the fluid in a slow stream. A Foley urethral catheter was left indwelling to prevent further bladder distention, and a repeat cystometrogram was done on December 21, 1960. At that time, the bladder tone was better, and at a filling of 200 cc. he was able to raise the intravesical pressure to 110 mm. Hg by abdominal straining. There was only 10 cc. of residual urine. After removal of the Foley catheter, he was able to void by straining every four to five hours, and to stay completely continent.

This case represents excellent recovery of bladder function, with abdominal straining, after an incomplete cord injury. Since the patient also showed good return of muscle strength in the legs (although they were very spastic), he was able to ambulate with the help of a cane, after a period of rehabilitation. He used a short leg brace on the right. He was discharged on January 7, 1961.

Case No. 2. W. B., 33 years of age, was admitted to I.M.H. on March 14, 1961. On January 17, 1961, he had suffered a fracture dislocation of D 12/L 1, with complete paraplegia, when he was hit by a falling piece of timber. He had previously been on catheter drainage, but on admission he was without catheter. Since he had good abdominal muscle contractions, he was able to void by means of abdominal straining. The B.U.N. was 13 mg. per cent, and an intravenous pyelogram showed normal upper urinary tracts. No ureteral reflux could be demonstrated by retrograde cystogram, but some bladder stones were present, and they were removed transurethrally on March 18, 1961.

On March 25, 1961, a cystometrogram showed normal bladder tone, and absence of uninhibited contractions. The patient was able to raise his intravesical pressure by abdominal straining to 60 mm. Hg at a bladder filling of 250 cc., and to 120 mm. Hg at a filling of 400 cc. There was less than 30 cc. of residual urine. The catheter was removed, and the patient was able to void between 300 and 500 cc. of urine every five to six hours and to stay dry meanwhile.

This is another example of early and excellent bladder recovery, with urinary continence and voiding by abdominal straining. The patient became ambulatory, with bilateral long leg braces and crutches, and was discharged on May 5, 1961.

Case No. 3. J. D., age 18, had suffered a spinal-cord injury from a gunshot wound at the level of D8, with complete paraplegia, in November, 1959. Only his upper abdominal muscles were intact. He was brought first to one of the Des Moines hospitals, and in January, 1960, was transferred elsewhere, where a vesico-cutaneous fistula was done to drain the paralyzed bladder. That arrangement broke down, and when we first saw him at Broadlawns Polk County Hospital, in Des Moines, we converted it into a suprapubic cystostomy to keep the patient dry. An intravenous pyelogram showed normal upper urinary tracts, and the B.U.N. was 12 mg. per cent.

On October 24, 1960, he was admitted to the Younker Memorial Rehabilitation Center of I.M.H. for further urological investigations and rehabilitation. On the next day, a retrograde cystogram outlined marked ureteral reflux on the left, and bladder stones. The bladder calculi were removed transurethrally, and the urinary-tract infection was treated until his urine showed only occasional pus cells per high-power field and mild bacteriuria. The suprapubic tube was removed and replaced by a urethral catheter. Cystometrography showed good detrusor contractions at fillings from 200 to 400 cc., but the bladder was hypertonic, and there were several uninhibited detrusor contractions. The retrograde cystogram was repeated on December 19, and the left ureteral reflux could no longer be demonstrated. The urethral catheter was removed, and the patient voided at irregular intervals. The residual urine averaged 50 cc. Because of the uninhibited contractions and the complete loss of bladder sensation, he was unable to anticipate the imminence of urination, and had to wear an external continence device (rubber urinal). Follow-up examinations since then have shown no changes in the intravenous pyelograms, and he has continued to empty his bladder fairly well (less than 60 cc. of residual urine).

This case is an example of automatic reflex bladder with incontinence. The patient demonstrated a flaccid type of paraplegia. He learned to ambulate independently with long leg braces and crutches, but spent most of his time in a wheel chair, in which he was independent. He was discharged on December 23, 1960.

Case No. 4. C. O., age 36, had fallen from a bridge and fractured D 12, with complete paraplegia, on August 20, 1959. A Foley urethral catheter had been inserted shortly afterward for continuous drainage. An intravenous pyelogram at that time had been negative.

He was admitted to Y.M.R.C. on September 22, 1959, and on October 20, 1959, bladder calculi were removed transurethrally.

On March 3, 1960, the urethral catheter was removed, and the patient voided 200-250 cc. of urine at irregular intervals, chiefly by uninhibited reflex contractions of the detrusor. He had varying amounts of residual urine (50 to 150 cc.), but because of his good bladder capacity he was sent home without an indwelling urethral catheter. He had to wear a rubber urinal because of urinary incontinence, but he was ambulatory with bilateral long leg braces and crutches.

From April 27 to May 1, 1961, he was back in the hospital for a check up. An intravenous pyelogram again showed normal upper urinary tracts, and the B.U.N. was 14 mg. per cent. However, the

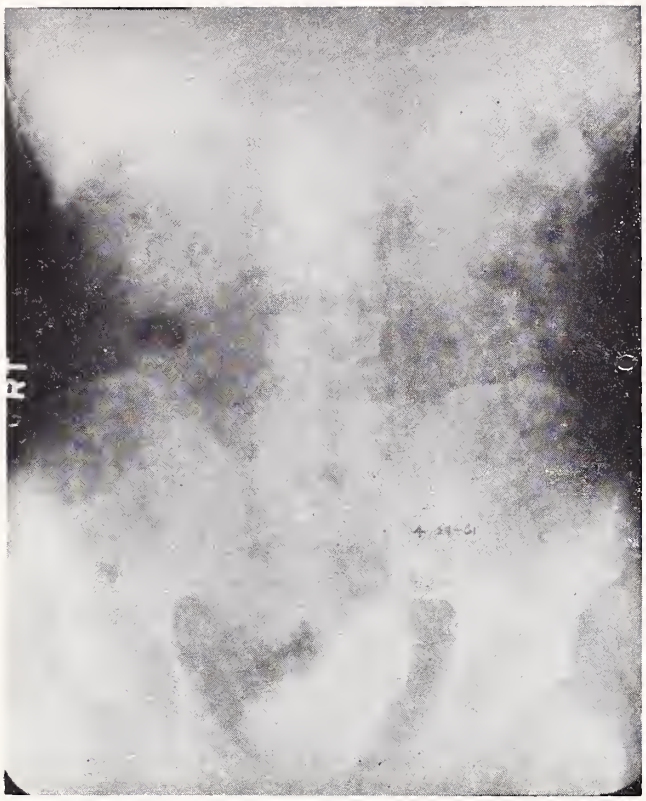


Figure 6. (Case No. 4, C. O.) Retrograde cystogram with deformity and pseudodiverticulum on left side of bladder, and left ureteral reflux outlining left pyeloureterogram.

retrograde cystogram showed marked ureteral reflux on the left, with deformity of the bladder on the same side (Figure 6). Cystoscopy revealed a very trabeculated, hypertonic bladder, and the bladder neck appeared obstructive, but there was only between 50 and 60 cc. of residual urine. There were uninhibited detrusor contractions, complete sensory paralysis and hypertonus on cystometric examinations.

This patient was to be rechecked after another six months of intermittent chemotherapy. A transurethral resection might not only eliminate the retention of urine but also abolish the ureteral reflux.

Case No. 5. J. M., 21 years of age, had suffered fractures of C6 and D12 in an automobile accident on April 13, 1960, resulting in a complete paraplegia and weakness of the left hand. He had also suffered a crushing injury to the right kidney that had necessitated a right nephrectomy elsewhere on June 12, 1960. He had been on continuous urethral-catheter drainage until August 10. He voided by uninhibited detrusor contractions at irregular intervals, requiring the use of a rubber urinal. The residual urine was between 60 and 100 cc.

He was admitted to I.M.H. on September 25, 1960. At that time his B.U.N. was 19 mg. per cent, and an intravenous pyelogram showed a normal outline of the collecting system of the solitary left kidney. The residual urine was 70 cc. A retrograde cystogram showed reflux along the right ureteral stump and a deformed bladder (Figure 7A). There was minimal reflux on the left. A cystometrogram showed increased bladder tone, a capacity of 100 to 150 cc., and uninhibited detrusor contractions. There was sensory paralysis. Because of urinary incontinence, the patient had to continue wearing a rubber urinal.

On January 12, he developed a boil on the right buttock, which grew Staphylococcus aureus. On February 2, he started to have continuous spiking fever up to 104°F, associated with severe chills. A urine culture also grew Staphylococcus aureus. Another intravenous pyelogram showed no stasis or deformity of the left renal collecting system. The lower two thirds of the left ureter was not outlined by the contrast medium. His staphylococcal infection was treated with erythromycin and then with albamycin, to which his staphylococci had been sensitive *in vitro*. The high fever and chills persisted. Vancomycin, 500 mg. in a saline infusion intravenously every six hours, was tried for three days without breaking the fever and chills.

On February 17, 1961, a cystoscopy and left retrograde ureteral catheterization were attempted in order to rule out ony stasis-producing obstructive lesion. Also, films were taken during inspiration and expiration on the chance that they might

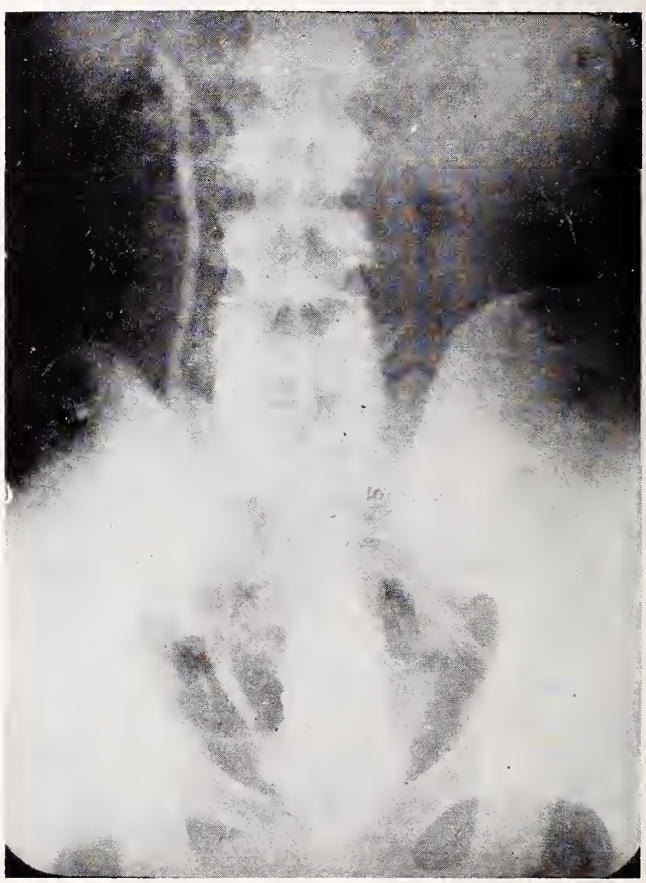


Figure 7A. (Case No. 5, J. L. M.) Retrograde cystogram showing reflux into right ureteral stump, and marked deformity of bladder. The patient had had a previous right nephrectomy. There is mild reflux also on the left.

reveal a perinephric abscess. The ureteral catheter hit an obstruction about 3 cm. above the left vesico-ureteral junction, and Figure 7B demonstrates the narrowing and dilation and the deformity cephalad of the left ureter. This last no doubt had been caused by the tremendous hypertrophy and deformity of the patient's neurogenic bladder. The edema caused by his staphylococcal infection had no doubt further contributed to the obstruction of the lower left ureter.

On February 18, 1961, a left ureterostomy *in situ* was done, and the patient made an uneventful recovery. After proper drainage of his solitary left kidney had been provided, his fever and chills subsided within two days postoperatively, and within another week his temperature was down to normal levels. During the ensuing six weeks, he was continued on appropriate antibiotics, as determined by sensitivity studies. The Staphylococcus aureus disappeared from his urine five days after surgery. Cultures showed mixed infection by the common urinary pathogens such as Proteus, coliform organisms and Pseudomonas, but the result was only a mild pyuria, rather than renal or systemic infection.

On March 28, 1961, contrast medium was injected

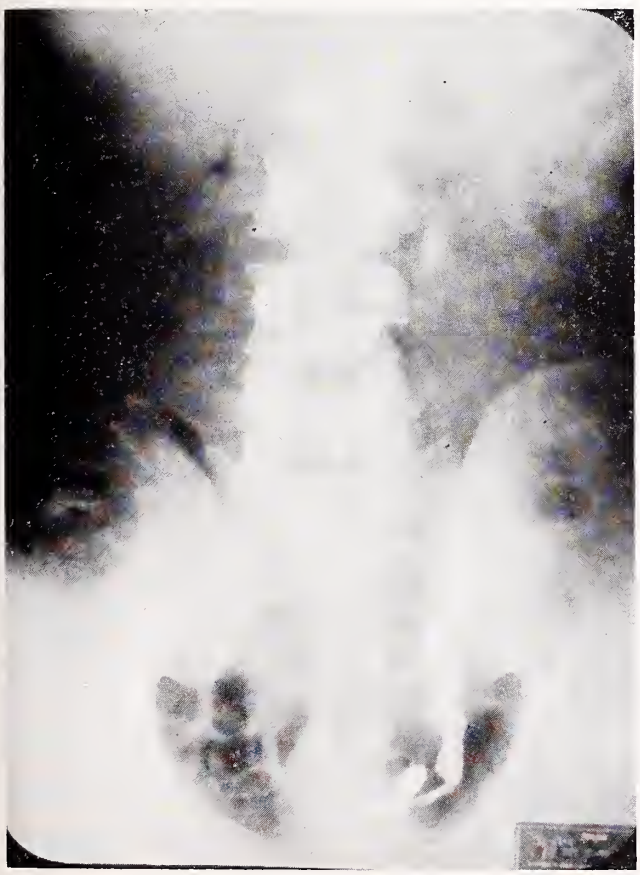


Figure 7B. (Case No. 5, J. L. M.) Left retrograde ureterogram showing tip of ureteral catheter 3 cm. above left uretero-vesical junction and obstructed by a kink in the ureter due to bladder deformity. Most of the left ureter is kinked and dilated.

Figure 8A. (Case No. 6, J. H.) Intravenous pyelogram showing three calculi in tips of upper, middle and lower calyces of left kidney. A fair sized calculus is in the lower left ureter, without hydronephrosis above it.

through the T-tube into the left ureter, and its passage down the ureter was observed under cinefluoroscopy (image intensifier). Following the subsidence of the infection and the ureteral edema, apparently the kinked ureter was again sufficiently patent to allow the medium to flow down smoothly into the bladder. The dilation of the lower ureter had also disappeared. The ureterostomy catheter was removed, and there was urinary drainage from its site for only a few days.

The patient's temperature stayed within normal limits until his discharge, on May 6, 1961. He had resumed his rehabilitation program, and on discharge was ambulatory independently, with bilateral long leg braces and crutches. His urethral catheter was removed and he emptied his bladder well, but he continued to require a rubber urinal because of incontinence (automatic reflex bladder).

In July, 1961, his B.U.N. and intravenous pyelogram were normal.

Case No. 6. J. H., age 65, had fallen from a scaffolding on October 12, 1955, suffering a fracture of C4 and C5, and had become quadriparetic. In February, 1959, bladder stones had been removed suprapubically, and a permanent suprapubic catheter had been left indwelling. These procedures had been done at another hospital. The

Figure 8B. (Case No. 6, J. H.) Retrograde ureteral catheter by-passing obstructing left ureteral stone, which has dropped down from left kidney.

patient was admitted to Y.M.R.C. on January 8, 1961. He had been taking broad spectrum antibiotics continuously "to keep from having fever and cloudy urine." No recent urological work-up had been done. The urine was found to be loaded with pus cells, the B.U.N. was 16 mg. per cent, and an intravenous pyelogram revealed three calculi in calyces of the left kidney and a large left ureteral calculus (Figure 8A).

On January 19, 1961, a cystoscopy showed trabeculation of grade III and diffuse cystitis. When a urethral catheter was introduced on the left side it met an obstruction at the calculus just mentioned. While the calculus was being bypassed, purulent urine exuded from the left ureteral orifice. Prior to the cystoscopy, the patient had had a fever spiking up to 103°F.

On January 27, 1961, the left ureteral calculus was removed by ureterolithotomy. The fever subsided within a few days and his urine became clear. Since he was quadriparetic and had had a suprapubic catheter for several years, no attempt was made to free him from catheter drainage.

He was seen for a check-up six months later. His urine continued to be clear, in spite of his not having taken any antibiotics. He was irrigating his suprapubic catheter with 10 per cent renacidin twice weekly, and had had it changed every six weeks. The stones in the left kidney were of the same size as they had been, and since they were not causing stasis or obstruction, there was no indication for removing them. He was discharged on April 1, 1961, still in a wheel chair, but improved on certain hand and self-care activities.

On October 24, 1961, he developed fever, chills and left-flank pain. An intravenous pyelogram showed that one of the kidney stones had descended into the upper left ureter, and was obstructing it, causing hydronephrosis (Figure 8B). Cystoscopy was done, and a ureteral catheter was passed by the obstructing ureteral stone into the left renal pelvis, to relieve the hydronephrosis. After the fever had subsided, the obstructing ureteral stone and the stones remaining in the left kidney were removed through a combined pelvionephro-lithotomy. A nephrostomy tube was left indwelling for a few weeks, and the left kidney was irrigated with five per cent renacidin solution. Following removal of the nephrostomy tube, there was no leakage from the flank, and the patient has done well since then. A follow-up kidney, ureter and bladder examination showed no residual stones in the left kidney. Biopsy of the left kidney at the time of surgery had shown advanced chronic pyelonephritis, but the kidney averaged on output of 800 cc. through the nephrostomy tube (Figure 8B).

Case No. 7. A. L. P., age 56, had apparently been in good health, but had started developing gradual paraplegia on about August 15, 1960. On August 30, he had developed urinary retention, necessitating urethral-catheter drainage. Myelograms had been done here and at a large clinic, but had produced no positive findings. A diagnosis of occlusion (thrombosis) of the anterior spinal artery was decided upon. The blood pressure was 130/80 mm. Hg.

On August 31, 1960, anticoagulant therapy was started. By then, complete paraplegia had developed, with a sensory level of D8 to D9. The patient was admitted to I.M.H. on September 16, 1960. An intravenous pyelogram on October 6, 1960, was negative.

On October 17, 1960, he developed spiking fever to 104°F., chills and marked pyuria. Another intravenous pyelogram on October 22, 1960, showed delayed function of the right kidney and marked hydronephrosis. No opaque calculus could be seen.

On October 22, 1960, a cystoscopy was done, and the right ureter was catheterized, but an impassable obstruction was encountered. Contrast medium outlined a negative filling defect at the tip of the ureteral catheter (Figure 9A). When the ureteral catheter was forced somewhat, the tip could be passed just beyond the negative filling defect, presumably a non-opaque calculus, and a brisk urinary drip from the hydronephrotic kidney was obtained. Another ureteral catheter was put up to the upper ureter, and a five per cent renacidin

Murphy drip was started through one of the ureteral catheters and was continued for two days. The patient's temperature subsided. Antibiotics, chosen in accordance with sensitivity studies, had been given for about 10 days, or since the onset of fever.

On October 24, 1960, the ureteral catheters were withdrawn, and contrast medium was injected through one of the catheters when it was at the level of the ischial spine. The right retrograde pyeloureterogram (Figure 9B) outlined a normal-appearing upper urinary tract. The previously seen hydronephrosis and non-opaque calculus had disappeared. The B.U.N., a few days later, was 11 mg. per cent.

Another intravenous pyelogram was done on November 7, 1960, and it showed no dilation or deformity. A retrograde cystogram was negative, and there was no ureteral reflux.

During December, 1960, the patient developed convulsions and a pneumoencephalogram suggested a space-occupying lesion in the left parietal lobe. A metastatic brain tumor was removed on January 3, 1961. The pathologists' report was metastatic clear-cell carcinoma, probably from renal cortical carcinoma. The previous intravenous pyelograms were reviewed, and on January 12, 1961, a bilateral retrograde pyelogram was done. It showed no change in the architecture of the right kidney as compared with the previous films, but in the left pyelogram a crescentic deformity could be seen in the middle portion of the kidney which may have represented the primary carcinoma (Figure 9C).

The patient died on March 25, 1961, at a convalescent home. Unfortunately, no autopsy was obtained.

Case No. 8. L. G., a woman 22 years of age, had suffered a compression fracture of D10 and D11 in a car accident on July 4, 1959, with complete paraplegia. She had initially been started on continuous catheter drainage. She was admitted to Y.M.R.C. on February 20, 1960.

On February 25, 1960, an intravenous pyelogram showed a pyelonephritic contracted right kidney, but the left kidney was normal. Cystometrograms showed a hypertonic bladder, with low capacity because of uninhibited contractions. The urethral catheter was removed for a period lasting from June to August, 1960, but had to be reinserted because of uninhibited detrusor contractions and consequent urinary incontinence.

On October 20, 1960, a retrograde cystogram showed marked left ureteral reflux, with beginning dilation of the left ureter and kidney (Figure 10A). Since the left ureteral reflux did not disappear on catheter drainage, and since no urinary-tract infection was present, except for a mild bacteriuria, a surgical correction of the ureteral reflux was proposed. This seemed further indicated by the fact that the patient's left kidney was the only one functioning satisfactorily. The right kidney had been reduced to one-third of normal size and function as a result of chronic pyelonephritis.

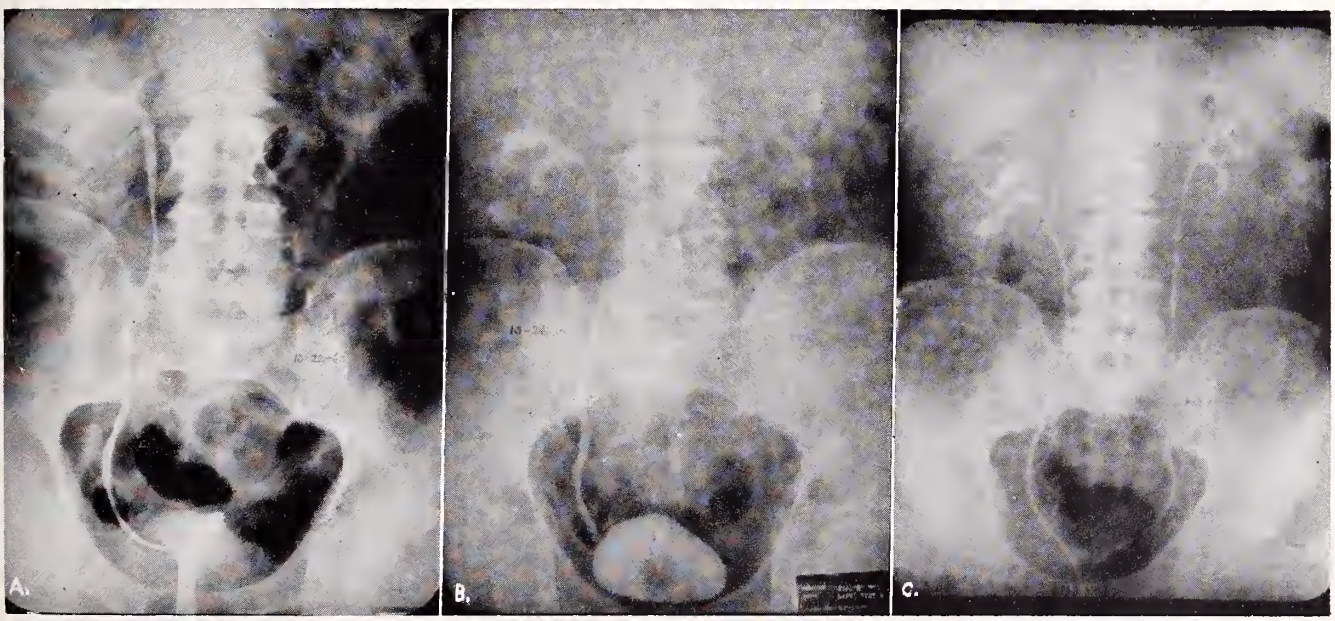


Figure 9. (Case No. 7, A. L. P.) A. Retrograde pyeloureterogram made on October 22, 1960, demonstrating right hydronephrosis with negative filling defect in the upper right ureter, presumably a non-opaque ureteral calculus. B. Right retrograde pyeloureterogram made on October 24, 1960, showing tip of ureteral catheter in lower ureter. After two days of renacidin irrigation of right kidney and ureter, the negative filling defect in the upper ureter had disappeared, as had also the right hydronephrosis. C. Bilateral pyelograms after a metastatic clear-cell carcinoma had been removed from the brain. The right kidney architecture is unchanged. On the left there is a crescentic deformity in the middle calyceal group, suggestive of tumor.

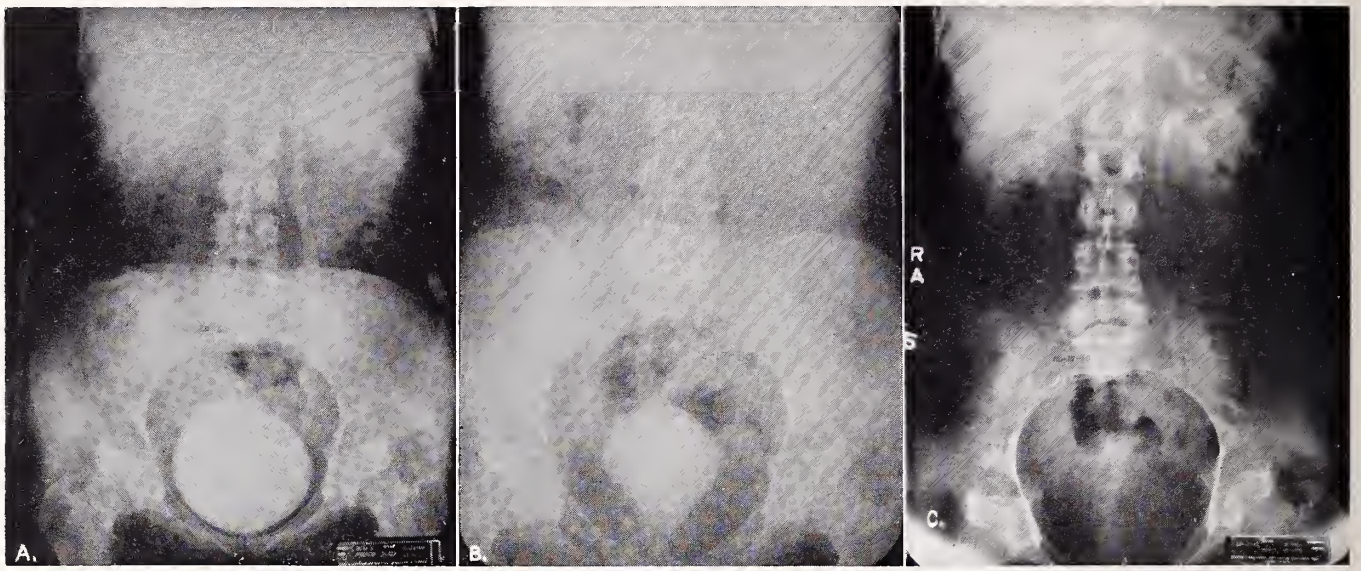


Figure 10. (Case No. 8, L. G.) A. Retrograde cystogram showing marked reflux of left ureter and kidney, with moderate dilation. The right kidney is reduced to one-third normal size by chronic pyelonephritis. B. Postoperative ureteroplasty retrograde cystogram (voiding). Note the funnel-shaped vesical neck after V-Y plasty, and the absence of the previous left ureteral reflux. C. Intravenous pyelogram. Postoperative left "tunnel-and-cuff ureteroplasty." Left kidney and ureter are normal. On the right side is the pyelonephritic, contracted kidney which was already present in February, 1960.

On November 14, 1960, a left "tunnel-and-cuff ureteroplasty," combined with a "V-Y vesical neck plasty," was done. At surgery, the previous cystoscopic findings were confirmed, the vesical neck appeared tight, and the bladder was trabeculated to grade III. The postoperative course was uneventful.

On December 2, 1960, the B.U.N. was 5 mg. per cent. An intravenous pyelogram on December 15 showed good function, and normal outline of the left kidney and ureter (Figure 10C). The ureteral dilation had disappeared. A retrograde cystogram on December 17 showed a funnel-shaped vesical outlet, and neither it nor a voiding cystogram showed any ureteral reflux (Figure 10B). The patient tried to do without the urethral catheter, but was always unable to anticipate urination and stayed wet. She tolerates the urethral catheter well, and has shown no changes in the upper tract since. Her urine has remained clear, and she has had no clinical signs of urinary-tract infection.

She learned to ambulate with bilateral long leg braces and crutches, but spent most of her time in a wheel chair, in which she was independent.

Case No. 9. J. D., a five-year-old girl, had been

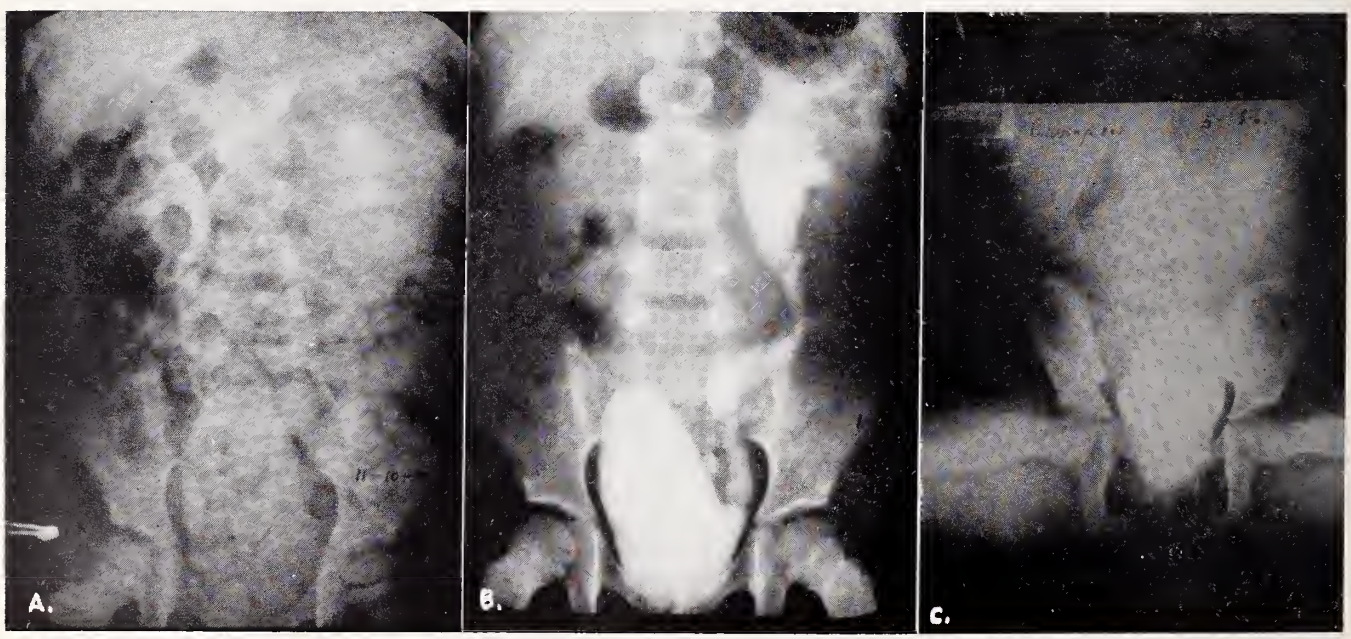


Figure 11. (Case No. 9, J. D.) A. Age 4. Intravenous pyelogram showing left hydronephrosis due to left ureteral reflux. B. Age 5. Retrograde cystogram. Note the dilated and deformed bladder and the marked left ureteral reflux with hydronephrosis. C. Age 5. Postoperative ureteroplasty retrograde cystogram. Left ureteral reflux is no longer present.

Figure 11D. Postoperative ureteroplasty intravenous pyelogram. Left kidney and ureter appear normal again.

born with spina bifida. Surgical repair had been done at the age of three days, and she had learned to walk, with a waddling gait, at the age of 17 months. She suffered from urinary incontinence, recurrent urinary-tract infections, and straining at urination.

An intravenous pyelogram on December 13, 1956, was grossly normal, but another, performed on November 10, 1959 (Figure 11A), showed marked left hydronephrosis. A retrograde cystogram demonstrated left ureteral reflux. She was put on a multiple-voiding regime, with abdominal straining and intermittent catheter drainage. Another retrograde cystogram, made on January 25, 1961, is shown in Figure 11B. The bladder showed marked enlargement and dilation, and the left ureteral reflux was more pronounced.

On March 13, 1961, a left "tunnel-and-cuff ureteroplasty and vesical neck V-Y plasty" was done. Except for some postoperative bleeding, which was controlled by cystoscopic fulguration, the postoperative course was uneventful.

A retrograde cystogram postoperatively, on May 18, 1961, is reproduced here as Figure 11C. In the voiding cystogram, there was no ureteral reflux. Figure 11D shows the postoperative intravenous pyelogram made on September 16, 1961.

The patient tries to empty her bladder every three to four hours during the daytime, and her mother helps her by applying manual abdominal pressure. Her residual urine, which was previously between 100 and 120 cc., is now reduced to between 40 and 50 cc. In between her voidings by abdominal straining, she stays relatively dry. Her urine has been microscopically negative, and there have been no episodes of clinical urinary-tract infection. As she grows older, efforts will be made to induce a ryhthmic voiding pattern by abdominal straining, and to attain urinary continence.

Case No. 10. W. P., age 29, had been injured on July 10, 1960, when a truck under which he had been working fell on him, fracturing D 11 vertebra and causing complete paraplegia. Continuous urethral catheter drainage had been instituted early.

On September 2, 1960, the patient had developed a scrotal abscess, and it had become a peno-scrotal urethro-cutaneous fistula one week later. The patient's catheter had not been taped to his abdomen to straighten the peno-scrotal curvature.

He was admitted to Y.M.R.C. on September 14, 1960. On September 16, an intravenous pyelogram was negative. On the next day, a suprapubic cystostomy and drainage of the scrotal abscess were done. On November 12, a cystometrogram showed good bladder tone, several uninhibited detrusor contractions and good detrusor contractions on abdominal straining. The capacity was over 500 cc.

On January 26, 1961, the peno-scrotal fistula was closed and the urethral pseudodiverticulum formation was excised. A cystoscopy on February 21, showed the urethra well healed. The bladder was trabeculated. The suprapubic catheter was removed to let the suprapubic sinus close, and urethral-catheter drainage was started.

By March 2, the suprapubic sinus had closed, and an attempt was made at removing the urethral catheter, but the patient was unable to void at all. The cystometrogram was the same as before, showing good detrusor contractions.

On May 2, a pudendal block was done (Figure 12B), with relaxation of the external urinary sphincter and subsequent voiding by the patient. A transurethral resection of the prostate and vesical neck was done on May 18, but the patient was still unable to void. It was felt that there was hypertrophy and spasticity of the external sphincter. Since the patient still had erections, pudendal neurectomy was inadvisable. A retrograde cystogram showed no ureteral reflux. Thus, on July 3, a transurethral resection of the external sphincter area was done. After that procedure and after the removal of the catheter, the patient was able to void by uninhibited contractions. He has no residual urine, but of course has to wear a rubber urinal for incontinence.

He has learned to ambulate with bilateral long leg braces and crutches, and was discharged on July 29, 1961. He is an independent walker with those devices.

Case No. 11. M. M., age 23, had suffered fracture of D10 vertebra in an automobile accident on September 9, 1959, with complete paraplegia. Prior to his admission to Y.M.R.C., he had had intermittent catheterization at the local hospital where he

Figure 12A. (Case No. 10, W. P.) Urethro-cystogram before pudendal block. Posterior urethra in region of external sphincter is narrow.

Figure 12B. (Case No. 10, W. P.) Shortly after pudendal intracaine block. Posterior urethra shows wide diameter due to relaxation of external sphincter.

received intital care, and had had about a dozen episodes of fever, chills and cloudy urine, and had passed about six urinary calculi. He demonstrated that he could void by abdominal straining, leaving no more than 50 to 80 cc. of residual urine, but he could not anticipate uninhibited detrusor contractions, and periodically wet himself.

On April 7, 1961, a urological work-up showed a B.U.N. of 11 mg. per cent. A urinalysis showed grade IV pyuria, and intravenous pyelograms showed the upper tracts normal, but the bladder full of large stones (Figure 13).

On April 14, a suprapubic vesical lithotomy was done for the removal of several large stones. It was noted at surgery that the patient had a very much hypertrophied bladder.

On May 1, a retrograde cystogram showed left ureteral reflux. Several residual urine checks showed less than 40 cc. Pyuria remained grade I-II. In spite of good abdominal straining, the patient wet himself frequently because of uninhibited detrusor contractions. He therefore started wearing a rubber urinal. He was dismissed on intermittent chemotherapy, and was to be checked in four months to see whether the ureteral reflux would disappear. He learned to ambulate on braces and crutches, though he had not done so previously, and he was discharged ambulatory on June 25, 1961.

Case No. 12. C. A. S., age 63, had been struck by a falling tree on October 9, 1948, and had suffered a fracture of L4, with complete paraplegia. He had been treated at various medical institutions, and was catheter-free on his admission to Y.M.R.C. on March 21, 1961.

He gave a history of recurrent urinary-tract infections over a period of four years, manifested by fever and marked pyuria. The latest episode had occurred two weeks prior to his admission, and had been treated with broad-spectrum antibiotics, but without clearing the pyuria. He was voiding by abdominal pressure, and was losing urine in between times without being aware of it. He appeared to be in good general condition, was mentally alert, and was holding a good and responsible position in his profession. The laboratory data were as follows: hemoglobin 9.6 Gm. per cent, white blood cells 11,250/cu. mm., and B.U.N. 8 mg. per cent. Urinalysis showed grade III pus, and a culture grew Proteus mirabilis. The blood pressure was 140/80 mm. Hg.

In spite of his normal B.U.N., an intravenous pyelogram showed poorly functioning hydronephrotic kidneys. Cystoscopy revealed an open prostatic urethra, but the bladder was heavily trabeculated, with many cellules and generalized deformity. The ureteral orifices were patulous and gaping, and ureteral catheters could be let up only a few inches. Retrograde ureterograms showed tremendously dilated, kinked ureters. A retrograde cystogram demonstrated bilateral ureteral reflux, with grade IV bilateral hydronephrosis and ureterectasis (Figure 14). There was only 50 cc. of residual urine. Indigocarmine excretion from each

Figure 13. (Case No. 11, M. M.) K.U.B. Multiple vesical calculi. Upper tracts on intravenous pyelogram were normal.

Figure 14. (Case No. 12, C. A. S.) Retrograde cystogram. Marked bilateral ureteral reflux resulting in tremendous ureteral dilation and bilateral hydronephrosis. The patient had not been followed up urologically after his spinal-cord injury in 1948.

ureteral orifice was delayed and of poor concentration.

This patient offers a good example of how advanced renal damage can occur insidiously, and of how it is preventable if yearly urological check-ups are performed, including intravenous pyelograms and retrograde cystograms. When we first saw this man, the dilation and fibrosis of the kidneys and ureters had become irreversible, and corrective surgery would have been of no avail. So as to prevent further hydronephrosis and pyelonephritis, chiefly caused by the bilateral ureteral reflux, permanent and continuous drainage was instituted by means of a Foley urethral catheter, and the patient was admonished to have regular urological follow-up examinations thereafter.

SUMMARY

A brief review has been given of the neuroanatomy and physiology of the bladder. The urological work-up and management of patients with spinal-cord injury and disease at the Younker Memorial Rehabilitation Center of Iowa Methodist Hospital, Des Moines, have been discussed.

Cystometry is an important adjunct in diagnosing and in studying the progress of such patients.

Classification of the various types of neurogenic bladders is difficult and often rather artificial. Classical autonomic reflex or autonomic bladders are less frequent than are the mixed types. We have therefore preferred to discuss the diagnosis and management of neurogenic bladders according to the most distressing of the symptoms that such patients present—incontinence, residual urine, urgency, retention and initiation by abdominal straining.

The importance of life-long urological follow-ups of these patients has been stressed.

Twelve of our cases have been presented to illustrate important points in this discussion.

REFERENCES

1. Bors, E.: Neurogenic bladder. Urol. Surv., **7**:177-250, (June) 1957.
2. Bors, E., Comarr, A. E., and Moulton, S. H.: Role of nerve blocks in management of traumatic cord bladders: spinal anesthesia, subarachnoid alcohol injections, pudendal nerve anesthesia and vesical neck anesthesia. J. Urol., **63**:-653-666, (Apr.) 1950.
3. Emmett, J. L.: "Neuromuscular Disease of the Urinary Tract" In: Campbell, Meredith: Urology, Vol. II, pp. 1255-1283 (Sect. 11 of Ch. I). Philadelphia, W. B. Saunders Co., 1954.
4. Emmett, J. L., and Dunn, J. H.: Transurethral resection in surgical management of cord bladder. Surg., Gynec. & Obst., **83**:597-612, (Nov.) 1946.
5. Emmett, J. L., Daut, R. V., and Dunn, J. H.: Role of external urethral sphincter in normal bladder and cord bladder. J. Urol., **59**:439-454, (Mar.) 1948.
6. Hutch, J. A.: Vesico-ureteral reflux in paraplegic: cause and correction. J. Urol., **68**:457-469, (Aug.) 1952.
7. McGovern, J. H., Marshall, V. F., and Paquin, A. J., Jr.: Vesico-ureteral regurgitation in children. J. Urol., **83**:122-149, (Feb.) 1960.
8. Nesbit, R. M., and Gordon, W. G.: Management of urinary bladder in traumatic lesions of spinal cord and cauda equina. Surg., Gynec. & Obst., **72**:328-331, (Feb. No. 2A) 1941.
9. Thompson, G. J., Nourse, M. H., and Bumpus, H. C., Jr.: Treatment of paraplegic; observations in series of 101 cases. J. Urol., **57**:1085-1096, (June) 1947.

Aneurysm of the Splenic Artery

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Waterloo

A CASE OF ANEURYSM of the splenic artery will be presented. It is an uncommon condition. Beaussier[1] first described aneurysm of the splenic artery in 1770, and over 300 cases of it have since been reported. Högler[2] made the first preoperative diagnosis, and Winckler[3] first recognized the condition during a surgical exploration. Details of the roentgenographic appearance of a calcified aneurysm like the one in this presentation were described by Lindboe.[4]

Owens and Coffey[5] reviewed the subject and found rather marked morbidity and mortality. Their investigation revealed the incidence of rupture to have been 46 per cent in reported cases, most commonly into the peritoneal cavity, and less often into an adjacent viscus or into the retroperitoneal space. They found that roentgenographic evidence of aneurysm of the splenic artery had been present in only 15 per cent of the patients previously reported, but more recent reports[6] indicate that the roentgenographic indications of calcification are the most frequent manifestations in over 75 per cent of cases. Further, the incidence of rupture in the total of 61 cases reviewed by Spittel *et al.*,[7] early in 1961, was only 8.2 per cent (5 cases). These marked changes that have taken place during recent years constitute the main reason for interest in this subject.

CASE REPORT

A white woman 72 years of age complained of vague abdominal epigastric pain that became severe enough to need medical attention in December, 1958. The distress had been present for six months, but there had been no nausea or vomiting.

A general examination revealed no mass or localized tenderness. The blood pressure was 140/80 mm. Hg. Roentgenograms of the chest, gallbladder and stomach were normal except for calcification in the splenic artery and a splenic aneurysm. Laboratory procedures revealed no abnormal blood findings.

Surgical treatment consisted of splenectomy and removal of the splenic artery proximally enough so that the resected portion included the aneurysm. A left subcostal incision was used.

The pathologist reported that the aneurysm was saccular, that it measured 3.0 x 2.2 x 2.2 cm., and that it had been due to arteriosclerosis. The wall of the aneurysm was calcified, as were the atherosclerotic portions of attached splenic artery.

The postoperative course was complicated by mild cystitis. Thus far, there has been no recurrence of epigastric distress.

COMMENT

This woman's case is fairly typical in that aneurysms of the splenic artery occur three times more frequently in women than in men, whereas all other arterial aneurysms occur in men four or five times more often than in women. This case is typical also in that 75 per cent appear in patients beyond 50 years of age.[7]

Pain was the predominant symptom, and roentgenography provided the only positive findings. In a recent series, as I have said, there were only about 8 per cent ruptures, as compared with 46 per cent in earlier studies. There are numerous reports of multiple aneurysms of the splenic artery, most of them having been atherosclerotic in type. There may be nausea and vomiting, gastrointestinal bleeding, splenomegaly, palpable mass, marked tenderness before complications of rupture, or the patients may be asymptomatic.

Congenital aneurysms show a wall of fibrous tissue, and are much less common than are the arteriosclerotic ones. The aneurysms are saccular and may have mural thrombi. Mycotic aneurysm associated with bacterial endocarditis can occur. Rupture can take place in the peritoneal cavity, into the stomach, into the colon or into other adjacent viscera. An arteriovenous fistula has produced portal hypertension ascitis. Rupture has occurred during the third trimester of pregnancy and during the early postpartum period.

In the differential diagnosis, splenic artery disease can be accurately distinguished from calcified cysts of the spleen, kidney and adrenal gland, as well as from aneurysms of the left renal artery, by means of aortography. Carrying out this type of study will insure accurate diagnosis, localize the aneurysm and disclose the coexistence of other visceral aneurysms.

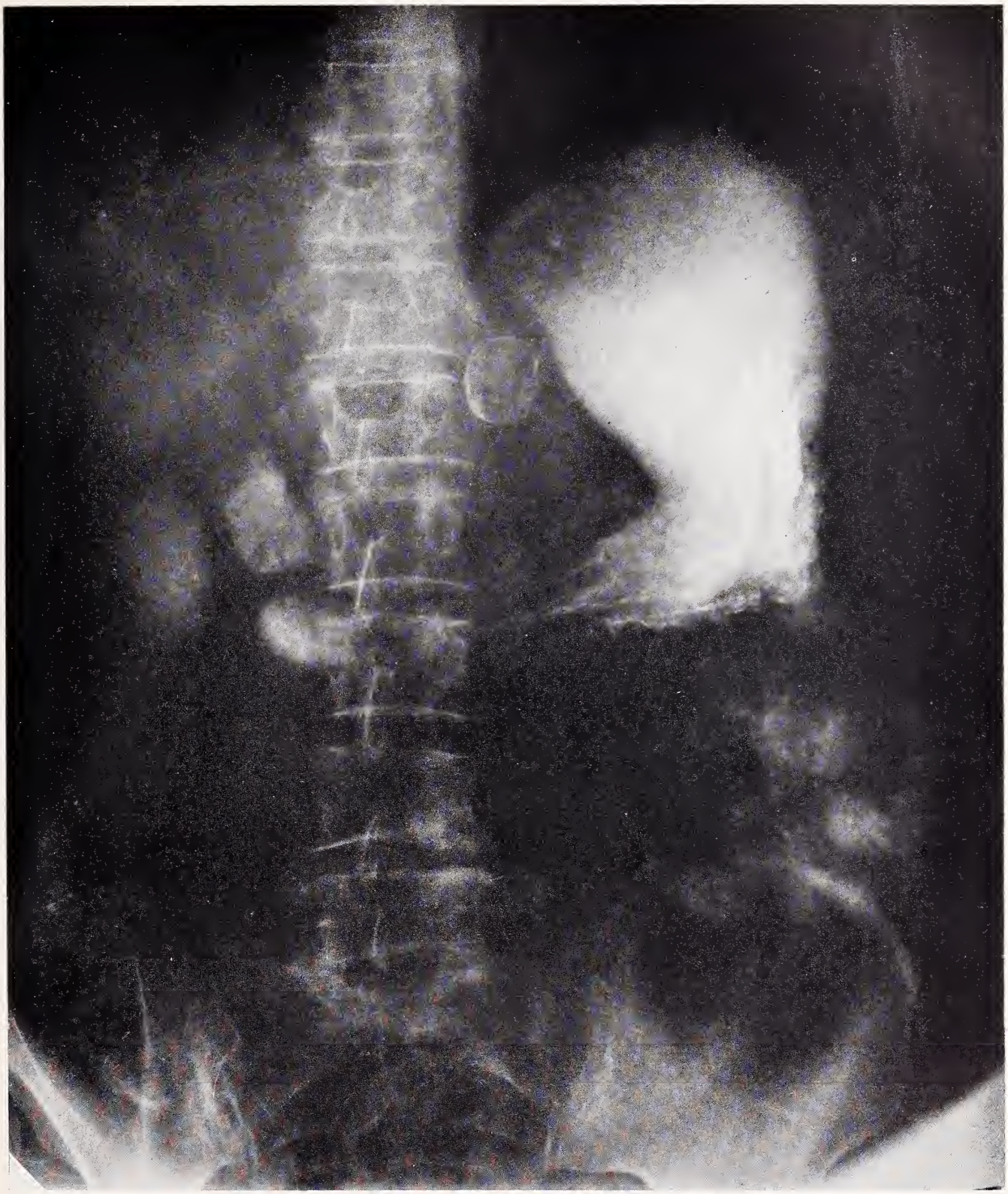
SUMMARY

In summary, aneurysms of the splenic artery are most common in females over 50 years of age. The symptoms are minimal during the early period, but rupture may occur.

The diagnosis is usually made on the basis of the typical curvilinear shadow of calcification in the left upper abdomen found on x-ray. Aortography will demonstrate the lesion.

The treatment is surgical excision of the po-

Dr. Mikelson made this presentation at the meeting of the Iowa Academy of Surgery, in Iowa City, on October 14, 1961.



The aneurysm of the splenic artery reported in the accompanying paper.

tentially serious lesion, before the occurrence of complications.

REFERENCES

1. Beaussier, quoted by Owens and Coffey (See No. 5, below).
2. Högler, F.: Beitrag zur Klinik des Leber und Milzarterien aneurysmas: (Zugleich ein Beitrag zur systematischen Auskultation der Bauchgefässe), Wein z Arch f inn Med., **1**:509-562, 1920.
3. Winckler, V.: Ein Fall von Milzextirpation wegen Aneurysma der Arteria lienalis. zbl. Chir., **32**:257-260, (Mar. 11) 1905.
4. Lindboe, E. F.: Aneurysm of splenic artery diagnosed by x-rays and operated upon with success. Acta chir scand., **72**:108-114, 1932.
5. Owens, J. C., and Coffey, R. J.: Collective review; aneurysm of splenic artery, including report of six additional cases. Int. Abstr. Surg. (Surg., Gynec. & Obst.), **97**:313-335, (Oct.) 1953.
6. Culver, G. J., and Pirson, H. S.: Splenic artery aneurysms; report of 17 cases showing calcification on plain roentgenograms. Radiology, **68**:217-223, (Feb.) 1957.
7. Spittel, J. A., Jr., *et al.*: Aneurysm of splenic artery. J.A.M.A., **175**:452-456, (Feb. 11) 1961.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 13-YEAR-OLD WHITE MALE CHILD was admitted to the University Hospitals on December 3 with the complaint of difficulty in breathing for three days. He had enjoyed good health until 18 months before his admission. At that time he had complained of malaise and anorexia, and had had a low grade fever. His physician detected jaundice, but no history of contact with a jaundiced person, or of blood transfusions or injections, could be obtained. His hemoglobin at that time was 9.8 Gm./100 ml., and his white blood cell count was 11,050/cu. mm. The serum bilirubin level was 15.6 mg. per cent, and the sedimentation rate was 40 mm. in one hour. During the subsequent two weeks, his stools became clay-colored, and his urine became the color of tea. He was treated with rest, vitamins, liver extract shots and a low-fat diet. After two weeks, his jaundice lessened, but did not disappear completely. Three months after the onset of his jaundice, his serum bilirubin was reported to be 12.6 mg. per cent, and five months after onset, it was reported to be 24.1 mg. per cent. Subsequently, the jaundice cleared, and the patient was permitted a limited resumption of activity. He continued to improve, and seemed well, according to his parents. He received a weekly 5 ml. intravenous injection of Intraheptol.

Two weeks prior to his admission, the patient and the other members of the family had had a flu-like infection. The patient continued to cough after his recovery from the acute phase of the infection. One week prior to admission, he had cut his finger on a piece of glass, and the wound had become infected. Five days later, his cough had become productive, and his parents noted that he was having respiratory difficulty. His sputum was tinged with blood. He was seen by his physician, given intramuscular injections of penicillin and Terramycin, and transferred immediately to University Hospitals.

Physical examination showed a drowsy, pale and dyspneic child. There was an infected laceration on the index finger of the right hand, and slight pitting edema was noted on the dorsum of each foot. His respiratory rate was 45 per minute, and although the lungs were clear to percussion, crepitant rales were heard over both anterior and posterior lung fields. The blood pressure was 110/60 mm. Hg, and the pulse was 100. The temperature was 100.2°F., rectally. There was minimal depression of breath sounds. No cardiac abnormalities could be detected on physical examination. The liver edge was palpable two to three fingerbreadths below the right costal margin. No nevi were noted on the skin. No localizing or lateralizing neurologic signs could be detected, and the patient did not appear icteric at the time of examination.

Laboratory studies showed a hemoglobin of 8.2 Gm., and a white count of 10,500/cu. mm., with 65 per cent polymorphonuclear neutrophil leukocytes, 2 per cent eosinophils, 1 per cent basophils, 25 per cent lymphocytes and 7 per cent monocytes. The hematocrit was 21 per cent. The blood urea nitrogen was 22 mg. per cent, and the creatinine was 1.2 mg. per cent. The serum CO_2 was 15 mEq./L., the chloride 107 mEq./L., the potassium 5.0 mEq./L., and the sodium 138 mEq./L. The total serum protein was 7.4 Gm. per cent, with an albumin of 2.0 Gm. per cent and a globulin of 5.4 Gm. per cent. A throat culture showed normal flora only. No growth was seen on a blood culture. The swab from the infected wound on the finger grew Escherichia coli.

A chest x-ray demonstrated an extensive confluent bilateral pneumonia.

The patient was placed in an oxygen tent, and was treated with intravenous penicillin and chloramphenicol. For 18 hours after admission, he was drowsy and continued to be dyspneic. There were no changes in his physical signs. He then suddenly died.

SUMMARY OF CLINICAL DISCUSSION

Dr. Robert E. Carter, Pediatrics: I shall ask Mr. Bauserman to discuss this case on behalf of the students.

Mr. Steven C. Bauserman, junior ward clerk: We are presented, first of all, with two episodes of disease, one 18 months prior to admission, in which the patient presented a picture of jaundice. We should first consider the various kinds of

jaundice. As regards hemolytic jaundice, we should have liked to see the results of Coomb's and blood-cell fragility tests, but in the absence of these, we are satisfied with the lack of increased amounts of urobilinogen in the patient's stools, manifested here by the clay color. Tea-colored urine suggests the presence of bile, whereas in most hemolytic jaundices we expect to find none. We rule out hemolytic jaundice on that basis.

Next, we must consider an extrinsic hemolytic process causing a calcium bilirubinate stone and producing an obstructive picture of the extrahepatic type. However, we regard this as only a remote possibility, and there is nothing in the history to suggest it.

When a patient presents with jaundice, three questions should be asked. First, was he exposed to persons who were jaundiced? Second, had he had transfusions or injections? These are answered in the protocol. The third question would be: Was he exposed to insecticides, weed killers or other toxic substances that are known to cause liver damage? Perhaps at this time we can request an answer to that question.

Dr. Carter: This youngster came from a rural environment, but in all of the information that we have on him, there is no evidence of his having been exposed to a specific toxic substance.

Mr. Bauserman: Thank you, Dr. Carter. We can thus rule out an extrinsic hemolytic process due to exposure to a toxic substance.

There are two types of obstructive jaundice, the extrahepatic and the intrahepatic. We think an extrahepatic one would be very likely to cause a fluctuating picture in the hyperbilirubinemia that we see. But in reviewing the common causes of extrahepatic obstruction, we think of stones in the common duct; we think of carcinoma of the head of the pancreas; we think of inflammations or infections in the biliary tract. We think each of these is rather unlikely in view of the course of this patient's illness—the fact that he had a remission, and his age. Of course, biliary atresia is another factor we should consider in most instances, but not in a 13-year-old boy.

Now the next class of entities that we think of is the intrahepatic—the hepatocellular or "medical" jaundice, and of course, the commonest type would be infectious hepatitis or serum hepatitis. Now, the history is negative in regard to these two components. However, we know that a person with infectious hepatitis isn't necessarily jaundiced, and that children are especially susceptible to this infection, so we'll come back to this possibility as being, statistically at least, the most likely.

We can think also of infectious mononucleosis as a possibility in this child. However, the course doesn't seem to have shown us a picture of mononucleosis. There were no palpable nodes reported. We wouldn't expect it to produce jaundice over a five-month period and then remit for a year without treatment, even though we realize that there is no specific treatment for mononucleosis.

We must also consider the possibility of a leukemia, lymphoma or Hodgkin's disease, but again, a remission is rather unlikely once the jaundice has developed, and we have no other manifestations of diseases of that type.

We have to consider parasitic intrahepatic obstruction in our differential diagnosis, and we should like to know what his eosinophil count was at this time. In the absence of that information, however, we still feel that his course wasn't typical of E. histolytica or anything of that kind.

We might also rule out toxic hepatogenous jaundice on the basis of the patient's history. And, of course, the toxic hepatitis would have caused a rather more acute and short-lived course.

We must think also of the less common entities such as sarcoidosis, amyloidosis, galactosemia and the glycogen-storage diseases, but again the picture doesn't quite fit. There should be other manifestations with any of these problems.

The collagen diseases should be given some thought, especially lupus erythematosus. It is commoner in girls, granted, but in 1956 McKay and Cowling, in Australia, reported an entity called lupoid hepatitis that they thought might account for many of the cases which had formerly been classified as chronic infectious hepatitis. These cases, they said, hadn't been due to persistence of the virus, but rather to an autoimmune reaction due to some change in the antigenicity of the hepatic cells, themselves, as a result of the action of the virus. This is an attractive possibility because many of the symptoms would be the same. The reason for the designation "lupoid" is that positive lupus erythematosus cells were found in several of those cases. The article that I found reported on only seven cases.

So we come back to our statistically-most-probable entity, chronic infectious hepatitis. Another possibility is that there may have been two components in this patient's hepatitis. First of all, would be infectious viral hepatitis contracted at the beginning of his course of jaundice, or before the course of frank jaundice, and second would be serum hepatitis, which could possibly have been introduced during his injections of Intraheptol. This would have been a rather ironic circumstance, but nonetheless possible.

Thus, we think that this patient's disease was an infectious hepatitis, lingering, fluctuating and causing severe liver damage. We think this explains his debilitated condition prior to the onset of his flu infection, and the infection of one of his fingers by the E. coli organism, which we know is a rather mild pathogen.

We think that his terminal illness was a viral pneumonia (interstitial pneumonia, atypical pneumonia—whichever you choose to call it), and

superimposed on it, perhaps, a gram-negative-rod type pneumonia, possibly due to E. coli. We rather expect to learn that this organism was cultured from the patient's lungs at autopsy. We feel that he was debilitated and had severe liver damage. He had been supported on weekly Intraheptol injections, or the equivalent of about 165 Gm. of liver extract per 5 ml. injection. We feel that his anemia is explained on the basis of an inability on the part of his liver to store the maturation factors necessary to regulate his erythropoiesis.

Dr. Carter: Answering Mr. Bauserman's question, I can point out that the eosinophil count was 2 per cent on the first blood count performed by the home town physician.

Dr. Donal Dunphy, Pediatrics: Since many of the factors have been mentioned, I shan't discuss them so exhaustively in terms of possibilities, but shall deal more in terms of probabilities.

I think that if we see a 13-year-old child who presents with fever, malaise and jaundice, we should think first of viral hepatitis. The limited laboratory data available—a bilirubin of 15.6 mg. per cent, an elevated sedimentation rate and a mild degree of anemia—seem to substantiate our impression of viral hepatitis. However, I would point out that the same clinical picture could be produced by an acute hemolytic process. A detailed history would be helpful. One might search for substances such as Fava beans that might have produced it. A detailed family history might be scrutinized for indications of familial spherocytosis. A careful family history can help to determine what additional laboratory studies should be carried out.

Obstructive lesions are uncommon in children, and such problems as exist are almost always associated with hemolytic disease.

Infectious mononucleosis would seem somewhat unlikely, although at this early stage one would be hard pressed to exclude this as a serious consideration in the differential diagnosis. At this point, I think I should be more comfortable if I had the results of an appraisal of liver function. What was the home town physician dealing with when he first saw this boy—a hemolytic type jaundice? Or was he dealing with an obstructive type of jaundice? Such things as a cephalin flocculation test, or transaminase or alkaline phosphatase determinations would have been very helpful in deciding whether it was obstructive or nonobstructive jaundice. Obstructive lesions, as I have said, are uncommon in children, and such problems as cholelithiasis are almost always associated with hemolytic disease. If this were an obstructive lesion in association with a hemolytic process, we'd get into the realm of uncommon problems.

Some of the data seem to contraindicate an acute hemolytic process. First, this boy's white count was around 10,000 or 11,000, and one would expect that an acute hemolytic process producing this degree of jaundice would call forth a more violent response. Second, one would expect to be confronted not only by the characteristic picture, say, of spherocytosis, but also by a very active hemopoietic tissue with a rather striking rise in the reticulocyte count. Thus, these simple procedures might help one to formulate some idea as to whether the chance of an acute hemolytic process should be investigated further. At this point I'd be inclined, if I had to make a choice, to look for infectious hepatitis, either serum or viral, or to look for infectious mononucleosis. A heterophile agglutination might have been very helpful reasonably early in the disease.

Subsequent events indicated quite clearly that the process was obstructive. The absence of bile in the stool and bile in the urine indicates that the people caring for the child were dealing with direct bilirubin, and that the jaundice was of an obstructive type. Statistically, there is no question that infectious hepatitis is by far the commonest problem in this age group, and I think the evidence is quite good that they were dealing with infectious hepatitis.

There are, however, other agents that produce hepatocellular damage and may result in an obstructive type of jaundice. Insecticides have been mentioned, but they aren't very common in pediatrics. Perhaps phosphorus in rat poison, or more commonly carbon tetrachloride, which is by no means a rare household agent, may produce this. By and large, however, patients poisoned by these substances show a more fulminating course and present much more severe and acute problems. So on this basis, one conceivably could feel reasonably sure that toxins had been excluded. One exception is alcohol. Its likelihood as a toxin in pediatrics is remote, particularly in this country, but it has been described in Europe, for example, where alcohols are introduced much earlier, and we have seen one child who died of advanced alcoholic cirrhosis at the age of 13. I must say that the diagnosis wasn't made until a house officer who spoke his native language found, during the third year of the boy's illness, that the mother was bringing beer and whiskey to him in the hospital.

Returning to the patient under discussion today, I must admit that we really don't know what happened to the boy. We are told that his jaundice ostensibly cleared. We don't have any subsequent bilirubin levels, and as you are quite aware, a patient can well have bilirubin retention without visible jaundice. Thus this boy may never have had a completely normal status as far as bilirubin is concerned, and much less as regards more direct sorts of evidence of hepatocellular damage like cephalin flocculation, BSP or transaminase determinations. I gather that these weren't done early in the course of the disease, nor were

they done as a follow-up to determine the activity of the disease.

Dr. Carter: The only tests performed were the ones that are listed in the protocol.

Dr. Dunphy: I think that the other measurements that I have mentioned would have provided important information, in addition to what is described as the patient's "apparent" well being. There are people who might even raise the question, "With so long a hepatitis, was there no role for steroid therapy?" In this connection, perhaps the internists might give us the benefit of their opinions, since the possible utility of steroids in long unresolved and presumably infectious hepatitis is a highly unusual problem in pediatrics.

Now let's turn our attention to the episode in which the patient's entire family seems to have experienced an acute, "flu-like" respiratory illness. I think that the evidence is reasonably good that this child had a super-infection during that period, in contrast with his condition during the first five or six days, which is described as having been fairly benign. There was a superimposition of additional symptoms—an increase in the severity of his cough and a change in the character of his sputum. The implication that he had sputum actually for the first time, and that the sputum was blood-tinged, suggests bacterial infection superimposed on influenza or on some one of the other respiratory viral diseases. The agents which are most likely to be thus superimposed—and here I disagree with Mr. Bauserman—are *not* the gram-negative organisms. In general, they tend to be the gram-positive ones, to wit, staphylococci, pneumococci and streptococci. Indeed, much of the mortality in older and debilitated patients can be laid at the door of these secondary invaders. A viral disease may well produce a necrotizing type of pneumonitis, and progress in spite of rather vigorous antibiotic therapy because it is the primary agent. I would favor secondary involvement with bacteria in this case, however, on the grounds of the time sequence and of the clinical picture that the child presented.

One other facet that I think should be emphasized is that at the time of the child's admission he had respiratory distress and some pitting edema. If these signs were indicative of cardiac decompensation, digitalization should have been considered. Yet I don't think that the evidence really supports a diagnosis of cardiac decompensation. I point first to his pulse rate, 100 beats per minute, which for a child of his age group isn't an elevated one. One would expect a much higher pulse rate with cardiac decompensation, unless there were some other compromising factors, and we know of none. In addition, there is no evidence of cardiac disease other than the pitting edema. I think this can best be explained in terms of the patient's low serum protein and his general status, rather than in terms of cardiac decompensation.

The liver's being two or three fingerbreadths below the costal margin leaves me somewhat in doubt. Since I don't know whose fingers did the measuring, I really can't tell how far down that was. Certainly one could expect liver enlargement at that stage, since liver disease is known to have preexisted. Actually, it would have been surprising if the liver had been small and not palpable. But "two fingerbreadths" doesn't tell me much of anything. I am not told whether nodules were felt, and I am not told the character or the consistency of the liver. These are important considerations that the person dealing with the child noted, assimilated and used in drawing his conclusions. But he has left me without the data on which he worked.

One thing more that remains to be explained is this child's death. We don't know how seriously ill he was when he presented. We are told that he had some dyspnea and that he was put into an oxygen tent. Then 18 hours later he was dead. I'd like to sum up his course this way. I think he had an infectious hepatitis with hepatocellular damage which, instead of resolving as it commonly does in pediatrics, went on to cirrhosis of the liver, with signs of liver decompensation. Unfortunately, it seems that he experienced an acute viral respiratory infection which then became superinfected with a bacteriologic agent, and that his demise probably can be attributed to severe pulmonary hemorrhages, which aren't uncommon and which would account for his rapid downhill course. Pathologically, one would expect that liver disease and pneumonitis would be complicated by hemorrhage, either with or without a superimposed bacteriologic infection.

Now if these findings are correct, or even if they aren't, I think it would have behooved the people caring for a child with liver disease to consider his hematologic status seriously, in terms of hemorrhage, since his cirrhosis might have progressed to the development of varices. Though I have no evidence to support such a suspicion, hemorrhage from varices may have played a role in his death. Rather, I do have evidence for a pneumonitis of a hemorrhagic type. In a patient with long-standing or reasonably long-standing liver disease, in whom one knows that the serum proteins are lowered, one certainly should be anxious to know the status of the prothrombin, particularly since hemorrhagic pneumonitis can be a severe and rather abrupt event. Even without a lowered prothrombin, a patient may have extensive pulmonary hemorrhage as part of his pathologic and clinical picture, and with a compromise of that sort, he is in special danger.

There is, perhaps, one remaining possibility. This child may have had renal disease in association with chronic liver disease. I think this chance

is extremely remote, and we have no evidence to substantiate it. We have no urinalysis that would indicate any renal abnormalities. Dr. Carter has told me that I have all of the laboratory data I need. Second, the blood urea nitrogen is slightly elevated, but I think no more than can be explained by the general status of the patient at the time of his hospitalization, so I have no reason to suspect an associated renal disease.

Lastly, did this patient have liver coma as a mechanism of his death? Again, I'd like to call upon the internist, for I really don't know what liver coma is. If it means shock, etc., it is conceivable in this case. As you know, the relationship between ammonia levels and liver disease is highly controversial. Believing in it is somewhat like believing in ghosts—if you think there are such things, you see them, but if you aren't convinced of their existence, you don't. I have no specific reason for suspecting liver coma, except that people with liver disease are very likely to respond to either hemorrhage or superinfection with a disproportionate intensity of shock.

My diagnosis is chronic liver disease, with cirrhosis and a fulminating infection, and with a striking degree of hemorrhagic pneumonitis. I'd favor a gram-positive organism, rather than a gram-negative one as a secondary invader, if one is demonstrated.

Dr. Carter: Thank you very much, Dr. Dunphy, for a most provocative discussion.

I shall clear up two points. First of all, in Iowa, it would be unthinkable for a 13-year-old boy to have an alcoholic cirrhosis. Second, the fingerbreadths were those of average residents' fingers, but I think your objection to that sort of measurement should be taken to heart by everybody who measures organ size.

Dr. George R. Zimmerman, Pathology: At necropsy, the boy was quite thin and was distinctly jaundiced. His liver was slightly smaller than normal, and was nodular. The liver cell nodules were separated by generally broad bands of fibrous tissue. This feature, in conjunction with the case history, practically identifies this boy's cirrhosis as post-necrotic and, more specifically, post-hepatitic, for in nutritional cirrhosis the fibrous tissue is usually of lesser quantity and more evenly dispersed throughout the parenchyma.

Microscopically, these liver cell nodules had no normal lobular architecture. That is, the usual relationships of hepatic cords, sinusoids, portal spaces and central veins had been lost. These nodules of parenchymal cells, therefore, were regenerated nodules from a remnant of a liver lobule that survived the viral infection. During regeneration, the stromal elements of the liver that determine the relationships of portal space, sinusoids and central vein are pushed aside. It is this stroma, plus some connective tissue which proliferates in response to parenchymal-cell necrosis, that makes up the broad bands of fibrous tissue between the liver nodules.

This rearrangement of the normal relationship between parenchymal cells and their blood supply subjects the parenchymal cell to hypoxia. In addition, it has been shown experimentally that abnormal vascular shunts develop, altering the vascular supply to the detriment of the parenchymal cells. The regenerated and surviving liver cells are then precariously situated in respect to oxygen supply and to essential nutrients. As a result, presumably, they are also more susceptible to various injurious agents. As there is more liver-cell necrosis, there is or may be more compensatory liver-cell regeneration, more fibrosis, more alteration of the vascular system, and eventually further necrosis. Apparently, then, cirrhosis may become self-propagating, regardless of the cause of the initial liver-cell necrosis. In this case, there was no anatomic evidence of persistent viral infection in the autopsy sections. Bile-ductile proliferation occurs with the other liver changes in cirrhosis, apparently as part of an attempt at repair.

The lungs were boggy and deeply red and red-purple from hemorrhage into the alveoli and from congestion. They were three times normal weight. Only a fraction of each lung was aerated. Microscopically, there were two pathologic processes, a viral type of reaction, and a bronchopneumonia with acute inflammatory exudates. The former was manifest as congestion, exudation of edema fluid and hemorrhage into alveoli, the presence of mononuclear inflammatory cells in alveolar spaces and alveolar walls, and the presence of hyaline membranes lining some alveoli. These findings suggest viral infection, but don't necessarily indicate it. Silo-filler's disease, for example, could produce the same changes.

A more acute inflammatory process was superimposed upon the viral type of pneumonia. This deduction is based upon the presence of intense neutrophilic exudate in some lung lobules. The nature of this bronchopneumonia was not clarified. Cultures of lung grew out only normal flora, and no organisms could be identified by means of Gram's or Giesma stains of lung tissue. The findings were consistent with those of aspiration pneumonia, but no aspirated food material could be found. This, however, doesn't exclude aspiration as a possible cause of the acute bronchopneumonia, and the agent responsible for it therefore remains unknown. Lung tissue was submitted to Dr. McKee for viral studies, and he will discuss that part of the investigation.

In response to the cardiac status, there were scattered lymphocytes in the interstices of the myocardium—enough to make one wonder about the possibility of clinically significant myocarditis. Sometimes myocarditis is associated with influenza. However, without cardiac dilation or

myocardial hypertrophy, it is unlikely that there was a significant cardiac disorder.

As incidental findings, there were numerous, typically tiny, renal hamartomas. These had the common composition of fibrous tissue and some renal tubules.

The frequency with which cirrhosis develops after viral hepatitis is unknown, since no one knows the incidence of viral hepatitis. There have been studies, however, designed to discover the number of cases of cirrhosis thought to be due to hepatitis. It appears that about a fourth of all cases of cirrhosis are complications of viral hepatitis. If one excludes biliary cirrhosis or obstructive cirrhosis, somewhere between 60 and 85 per cent of the remaining cases can be attributed to hepatitis. In children—again excluding obstructive cirrhosis—about 80 per cent of cirrhosis cases are thought to be due to hepatitis. The severity of the hepatitis has little relationship to the subsequent development of cirrhosis.

The immediate cause of death was confluent bronchopneumonia, partly viral and partly of unknown etiology.

Dr. Carter: Thank you very much, Dr. Zimmerman.

I believe you said that at autopsy one of the patient's lungs contained "normal bacteriologic flora." What does that phrase mean?

Dr. Zimmerman: May I pass that question to you, Dr. McKee?

Dr. Albert P. McKee, Bacteriology: It means the sum total of organisms that are found in the saliva which somehow may have come into contact with this particular specimen—such organisms as alpha hemolytic streptococci, a few pneumococci (not necessarily virulent), some Hemophilus influenzae, some Neisseria, perhaps catarrhalis and flava, and the usual hodgepodge. These are the normal flora that one could find if he cultured the mouth or throat of anyone in this room. I abhor nondescript terms like this one, but using it is much faster than writing out a long list. Enumerating the organisms would be worth while only if one could then be certain as to their significance.

The specimen was brought to me because of my interest in deaths from viral pneumonias. These patients may die rather abruptly. Several were brought to my attention during the 1957 epidemic of Asian influenza. Although I have tried repeatedly, using all the tricks I know, I have never succeeded in isolating a virus from one of them, this case included. I'm not sure why we fail.

We do go ahead, then, and look for something else. We try to establish some viral antigen in the lung, and in this case, as in two others, we

Figure 1. Low magnification of section of liver. Regenerated nodules of parenchyma, devoid of normal arrangement of portal spaces, sinusoids and central veins. Between these are broad bands of scar tissue and (not seen) many proliferating bile ductules.

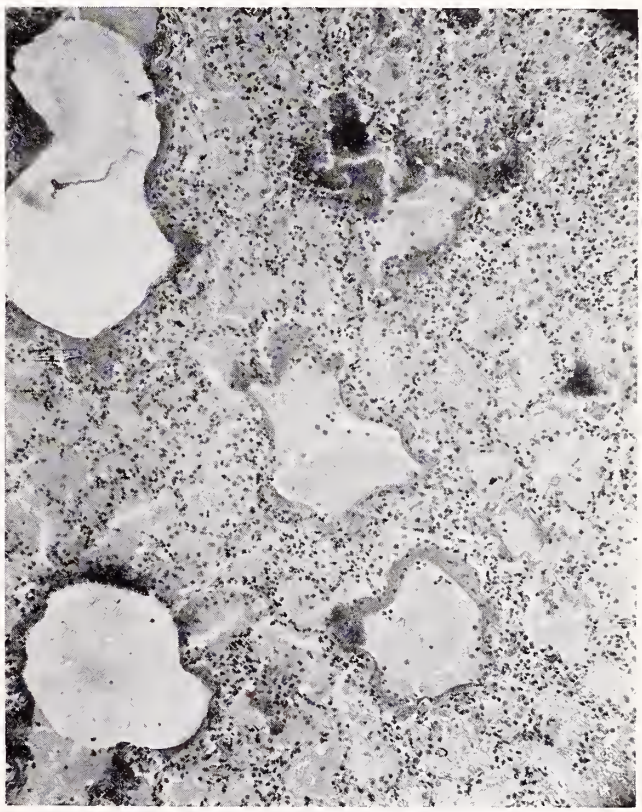


Figure 2. Lung. Most of the alveoli are filled with edema fluid and blood, and some are lined by hyaline membranes. Much of the cellular exudate is of mononuclear type. There are also some neutrophils from an adjacent area of intense acute bronchopneumonia.

have succeeded. We have been able to show (1) no viable virus, (2) no hemagglutinins and (3) a complement-fixing antigen of at least one influenza virus present in this lung in considerable quantity. In fact, it would be in about the same quantity as one would find in an infected susceptible animal that had died of a full-blown pneumonia from the virus. The human lung had a titer of complement-fixing antigen of 1:64, which is a good titer.

Now, as to the "why" of this, I am not quite certain, but I think we are inclined to forget one thing. We tend to think of infections in relation to only two groups of people: (1) the completely immune, whom they fail to affect, and (2) the completely susceptible, in whom they are fulminating things. But I must remind you that all of us have had influenza repeatedly, and thus none of us, probably, is completely susceptible. Conversely, each of us is probably partially immune. When the virus seeds itself in the lung, it finds itself in an area having a degree of resistance that is somewhere between the completely susceptible and the completely immune. I am sure that this circumstance affects the success of the virologist in getting the virus out, and to some extent affects the production of viral antigens.

We have an interesting experiment in a model population that mimics this situation rather markedly. We use 100 mice in a group, and infect them with strains of Asian influenza at a very high dilution—say, 10-9—which will produce an inapparent infection—one that you can't see. We wait some six weeks and then infect them with the next larger dose, namely 10-8. Six weeks later we use 10-7, and after another six weeks we use 10-6. Some viruses isolated during the Asian influenza epidemic make the mouse population more and more immune, so that none of the animals die. Another strain of virus that we isolated during the same epidemic invariably kills a certain percentage of the mice each time we challenge them. Those that are killed end up with lungs that look a great deal like the lung of the patient whom we are discussing.

We can find complement-fixing antigen in the lungs of those mice, but we can get the virus out of only about 50 per cent of them. I cannot help wondering whether an infection may not smolder in the lung of the semi-immune person, producing considerable trouble. If one fails to isolate the virus, one assumes that it isn't necessarily causing the infection. I think we should look for the antigen that might occur in these cases each time. It might well be there, and it might be the cause behind the pathologic picture. I think, then, that there are different strains of influenza causing different end results in different people.

I'd like to make one comment in regard to hepatitis. The virus that we have isolated, at least, has a very firm hold on the red blood cell and remains attached at 37°C. This mechanism could cause the host to produce antibodies against its own red cells—the autoimmunity that Mr. Bauserman mentioned. We can reproduce this condition experimentally, at least with one virus. A considerable quantity of antibody can be produced against these red blood cells. Perhaps this finding will explain some of the hemolytic phenomena that are encountered, and it may help to account for some of the liver damage. I think that this union between viruses and red cells is interesting, for if one tries to absorb out a specific antibody from these infections with the virus only, he has great difficulty. If one attaches the virus to the red blood cell first, however, he can then absorb out the antibody very nicely. Thus, perhaps there is considerable going on in the blood streams of these patients that we don't really understand.

Dr. Carter: Thank you very much, Dr. McKee.

In summary, then, we have a 13-year-old child who presented a picture of posthepatitic cirrhosis and succumbed to an acute pneumonitis, presumably of viral origin. The unanswered question relates to additional infectious agents which possibly played a role in his pneumonitis.

Dr. Dunphy raised a question concerning the possible use of steroids in the management of a smoldering hepatitis, and in the few moments that remain, I wonder whether anyone with experience in this area cares to comment on that point.

Dr. Richard D. Eckhardt, Internal Medicine, VA Hospital: Recalling the microscopic appearance of the patient's liver, I don't believe that any of us thinks that adrenal steroid hormones could have benefited him. It is expecting too much to suppose that these drugs could have improved the course of someone whose liver was so extensively scarred and fibrotic. These agents do appear beneficial, on occasion, for patients whose liver disease is "active," as evidenced by constitutional symptoms, fever, tender hepatomegaly, mild persistent jaundice, or elevated serum globulin concentration. For the infrequent patients with chronic hepatitis who have positive lupus erythematosus cell preparations, steroids may be of decided value. This is also true for the forms of persistent and chronic hepatitis that occur in girls at about the time of puberty, and in postmenopausal women. Although these agents don't usually achieve the dramatic benefits that we would desire, they may be of sufficient value to warrant a trial. When employed, they should be administered in large to massive doses, at least initially.

I should like also to comment upon "fingerbreadths." For several years, I insisted that everyone record liver size in centimeters, but I found that the resultant reports were even less reliable than the old ones. Physicians and students seldom have rulers with them, and a crude measurement

in terms of fingerbreadths is more accurate than a guess in terms of centimeters.

Dr. William B. Bean, Internal Medicine: I'd like to suggest a compromise. Let's each of us measure the widths of his fingers.

SUMMARY OF NECROPSY FINDINGS

At necropsy, there was bilateral, almost confluent bronchopneumonia. Microscopically, most of the pneumonic areas were characterized by severe edema, congestion and hemorrhage, the presence of intra-alveolar hyaline membranes and exudation of a few mononuclear inflammatory cells. In other areas, there was a superimposed abundant exudate of neutrophilic leukocytes. The lungs weighed a total of 1,340 Gm., about three times the normal weight.

There were jaundice and hepatic cirrhosis. The liver was coarsely nodular. The parenchymal nodules were separated by broad bands of fibrous tissue, in which there were many proliferating bile ductules.

Death was due to pneumonia.

STUDENTS' DIAGNOSES

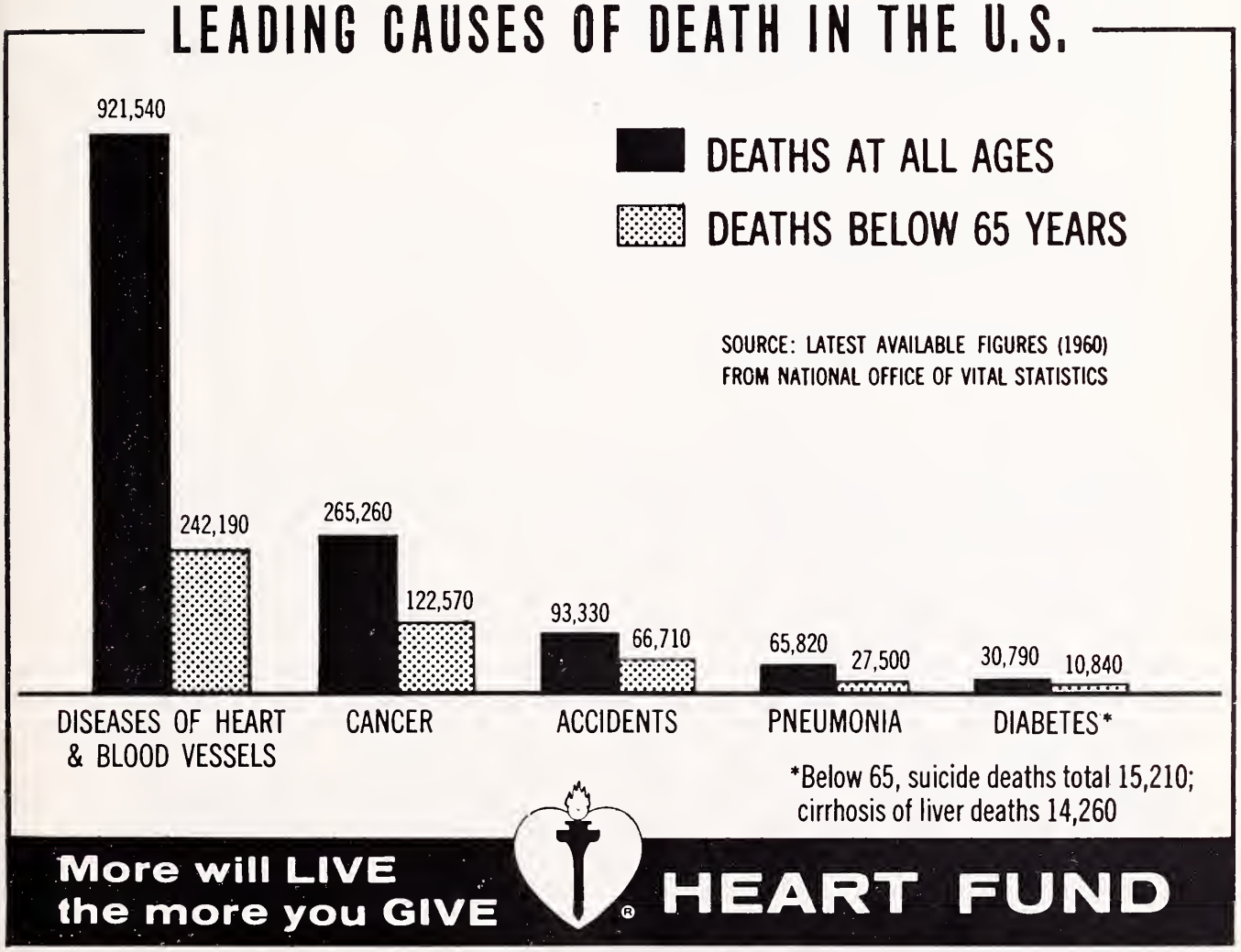
1. Chronic infectious hepatitis
2. Virus pneumonia with superimposed bacterial infection.

DISCUSSANT'S DIAGNOSES

1. Hepatic cirrhosis
2. Hemorrhagic pneumonitis, with superimposed bacterial infection.

ANATOMIC DIAGNOSES

1. Bronchopneumonia, bilateral
2. Hepatic cirrhosis, postnecrotic.



The nation's principal health enemies are diseases of the heart and blood vessels which, as the above chart shows, claim over 921,500 lives each year. Deaths from these causes represent about 54 per cent of the total in the U.S.—more than the combined total of all other diseases and all other causes. The Heart Fund is our No. 1 defense against these diseases. Give generously when a Heart Fund volunteer calls at your home on the weekend of Heart Sunday, February 25.

blood pressure approaches normal more readily, more safely....simply with

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Early, efficient reduction of blood pressure. Only Salutensin combines the advantages of protoveratrine A ("the most physiologic, hemodynamic reversal of hypertension"[1]) with the basic benefits of thiazide-rauwolfia therapy. The potentiating/additive effects of these agents[2-8] provide increased antihypertensive control at dosage levels which reduce the incidence and severity of unwanted effects.

Salutensin combines Saluron® (hydroflumethiazide), a more effective 'dry weight' diuretic which produces up to 60% greater excretion of sodium than does chlorothiazide[9]; reserpine, to block excessive pressor responses and relieve anxiety; and protoveratrine A, which relieves arteriolar constriction and reduces peripheral resistance through its action on the blood pressure reflex receptors in the carotid sinus.

Added advantages for long-term or difficult patients. Salutensin will reduce blood pressure (both systolic and diastolic) to normal or near-normal levels, and maintain it there, in the great majority of cases. Patients on thiazide/rauwolfia therapy often experience further improvement when transferred to Salutensin. Further, therapy with Salutensin is both economical and convenient.

Each Salutensin tablet contains: 50 mg. Saluron® (hydroflumethiazide), 0.125 mg. reserpine, and 0.2 mg. protoveratrine A. See Official Package Circular for complete information on dosage, side effects and precautions.

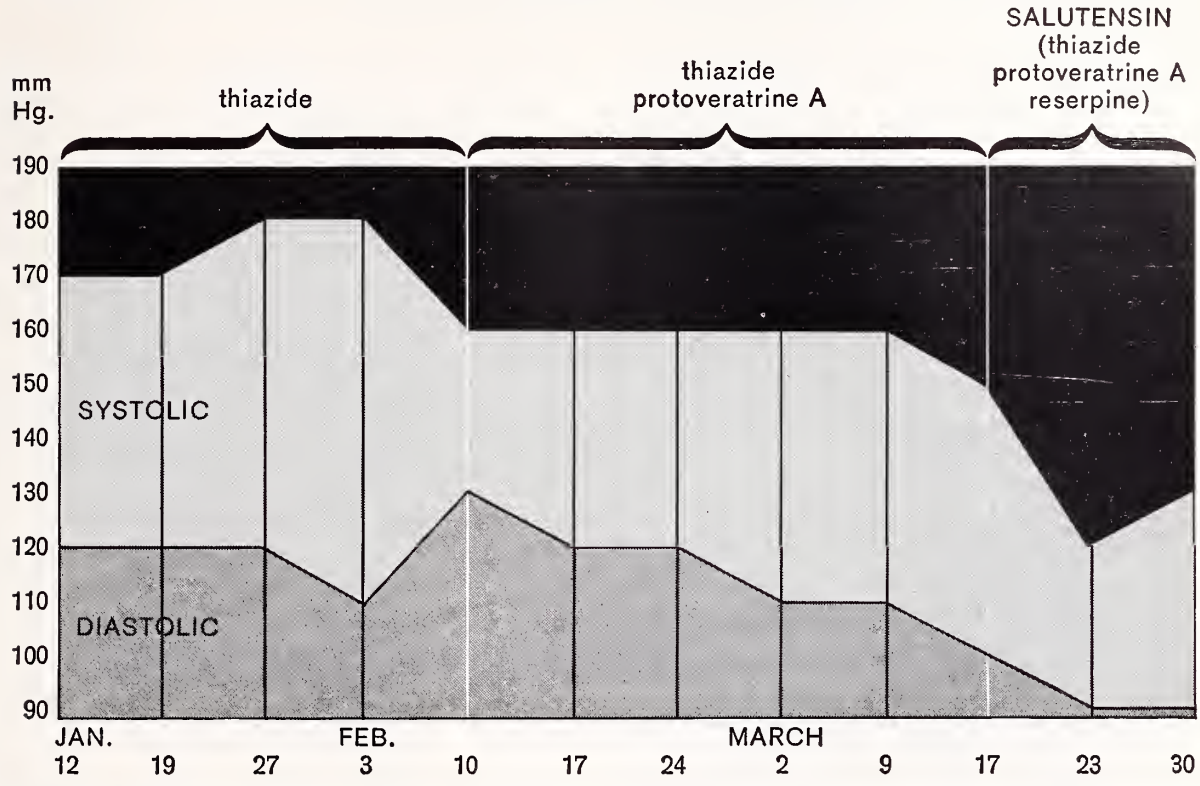
Supplied: Bottles of 60 scored tablets.

References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

all the antihypertensive benefits of thiazide-rauwolfia therapy plus the specific, physiologic vasodilation of protoveratrine A

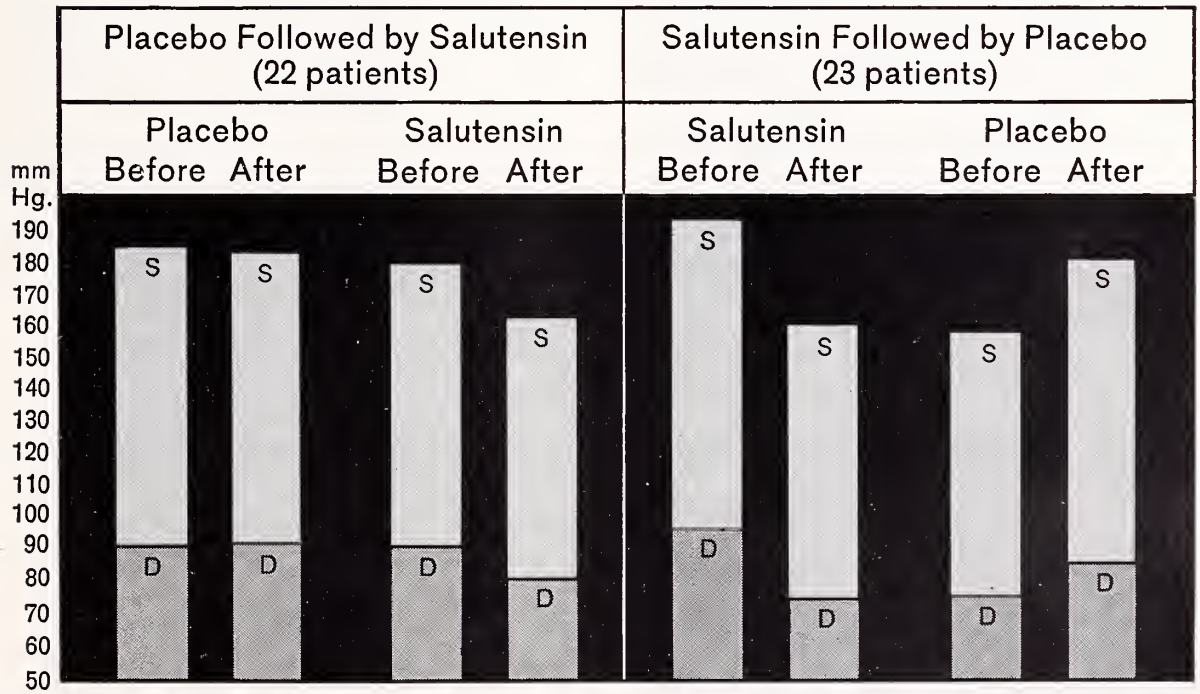
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

BRISTOL LABORATORIES / Div. of Bristol-Myers Co., Syracuse, N.Y.

Coming Meetings

In State

Feb. 13-16	**Refresher Course for the General Practitioner (S.U.I. College of Medicine and the Iowa Chapter of the American Academy of General Practice).** University Hospitals, Iowa City
Feb. 15-16	**Sioux Valley Meeting (Sioux Valley Medical Association).** Sheraton-Martin Hotel, Sioux City
Mar. 15	**Lederle Symposium.** Sheraton-Martin Hotel, Sioux City

Out of State

Feb. 3	**Conference on Office Gynecology and Obstetrics.** Presbyterian Medical Center, San Francisco
Feb. 3-6	**Congress on Medical Education and Licensure.** Palmer House, Chicago
Feb. 5-6	**Cardiac Auscultation.** University of Kansas, Kansas City, Kansas
Feb. 5-6	**Electrocardiography Course II.** University of Nebraska College of Medicine, Omaha
Feb. 5-7	**American Academy of Allergy.** Denver-Hilton Hotel, Denver
Feb. 5-8	**Applied Epidemiology (St. Louis County Health Department, Missouri Division of Health in cooperation with U. S. Department of Health, Education and Welfare).** St. Louis County Health Department, Clayton (St. Louis), Missouri
Feb. 7-9	**American Academy of Occupational Medicine.** Pittsburgh-Hilton Hotel, Pittsburgh
Feb. 7-10	**American College of Radiology Thirty-eighth Annual Convention.** Roosevelt Hotel, New York City
Feb. 8-10	**Symposium on Infertility (New York University Medical Center and the American Society for the Study of Sterility).** New York City
Feb. 9-10	**Dermatology.** University of California, San Francisco
Feb. 11	**American College of Legal Medicine.** Philadelphia
Feb. 12-14	**Pediatric Neurology.** Center for Continuation Study, University of Minnesota, Minneapolis
Feb. 12-16	**Pathologic Physiology of the Blood Dyscrasias (American College of Physicians).** Washington University School of Medicine, St. Louis
Feb. 12-16	**Medical-Surgical Clinical Symposia: Endocrinology, Neurology and Neurosurgery: Neurologic Psychiatry, Medical Problems in Surgical Patients, Pulmonary Disease, Gastroenterology.** University of Kansas, Kansas City, Kansas
Feb. 13-15	**Cardiac Emergencies.** Medical College of Georgia, Augusta
Feb. 15-17	**Special Viewpoints in Pediatrics.** University of California, San Francisco
Feb. 17	**Conference on EENT.** Presbyterian Medical Center, San Francisco
Feb. 17-24	**North American Clinical Dermatologic Society.** Royal Hawaiian Hotel, Honolulu
Feb. 17-24	**Second Postgraduate Seminar, International Medical-Legal Society.** Princess Kauilani Hotel, Honolulu
Feb. 19-21	**Radiology and Radioactive Isotopes.** University of Kansas, Kansas City, Kansas
Feb. 19-23	**Symposia on Challenging Medical Problems (American College of Physicians).** Baylor University College of Medicine, Houston
Feb. 19-Mar. 2	**Surgical Technique.** Cook County Graduate School of Medicine, Chicago
Feb. 20-22	**Psychosomatic Medicine.** University of California, Los Angeles
Feb. 20-22	**Theory and Application of Psychosomatic Medicine.** University of California, Los Angeles
Feb. 21-Mar. 1	**Clinical Postgraduate Program (University of California at Los Angeles in cooperation with the National Autonomous University of Mexico School of Medicine).** Mexico City
Feb. 22-24	**American Academy of Forensic Sciences.** Drake Hotel, Chicago
Feb. 23-24	**Hearing and Speech Symposium.** University of Kansas School of Medicine, Kansas City, Kansas
Feb. 24	**Lederle Symposium.** Westward Hotel, Anchorage, Alaska
Feb. 24-25	**Endocrinology.** University of California, Los Angeles
Feb. 26-Mar. 2	**General Surgery.** Cook County Graduate School of Medicine, Chicago
Feb. 26-Mar. 2	**Course for Physicians in General Practice (University of California).** Mount Zion Hospital, San Francisco
Feb. 27-28	**The Application of Computers in Cardiovascular Disease (Heart Association of Southeastern Pennsylvania).** Sheraton Hotel, Philadelphia
Mar. 1-3	**Conceptual Advances in Immunology and Oncology, Sixteenth Annual Symposium on Fundamental Cancer Research.** University of Texas M. D. Anderson Hospital and Tumor Institute, Houston
Mar. 2-3	**Operable Heart Disease, Fourth Annual Conference.** Presbyterian Medical Center, San Francisco
Mar. 2-3	**Proctology.** University of California, Los Angeles
Mar. 2-4	**Annual Meeting of the American Society of Psychosomatic Dentistry and Medicine.** Shoreham Hotel, Washington, D. C.
Mar. 3	**Coronary Arteriosclerosis.** Stanford University School of Medicine, Palo Alto, California
Mar. 3-4	**Annual Meeting, New York Society of Internal Medicine.** New York City
Mar. 3-5	**American Society of Facial Plastic Surgery.** New Orleans
Mar. 5-7	**Anesthesia for Specialists.** Center for Continuation Study, University of Minnesota, Minneapolis
Mar. 5-7	**Pediatrics Symposium.** University of Kansas School of Medicine, Kansas City, Kansas
Mar. 5-9	**Gastroenterology (American College of Physicians).** University of Michigan Medical School, Ann Arbor
Mar. 5-9	**Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago
Mar. 6-7	**Southwestern Pediatric Society Spring Lecture Series.** Statler Hotel, Los Angeles
Mar. 7-8	**Postgraduate Seminar on Diseases of Bone.** University of Missouri Medical Center, Columbia
Mar. 7-9	**Pain Relief in Childbirth.** Cook County Graduate School of Medicine, Chicago
Mar. 8-10	**Ocular Motility.** University of California, San Francisco
Mar. 10	**Child Development (University of California, San Francisco).** Children's Hospital, San Francisco
Mar. 12	**Spring Hospital Workshop Program (Kansas City Southwest Clinical Society).** Hospitals of Greater Kansas City
Mar. 12-14	**Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago
Mar. 12-15	**Twenty-fifth Annual Meeting of the New Orleans Graduate Medical Assembly.** Roosevelt Hotel, New Orleans
Mar. 12-16	**Selected Subjects in Internal Medicine (American College of Physicians).** University of Chicago Clinics, Chicago
Mar. 12-23	**Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago
Mar. 13-15	**Loma Linda University School of Medicine Alumni Postgraduate Convention.** Ambassador Hotel, Los Angeles
Mar. 14	**Lederle Symposium.** Lee Jackson Hotel, Winchester, Virginia
Mar. 14-18	**Diagnostic Radiology.** University of California, San Francisco
Mar. 15-16	**Infectious Diseases.** University of Nebraska College of Medicine, Omaha
Mar. 15-17	**Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago
Mar. 16-17	**Treatment of Traumatic Injuries.** Center for Continuation Study, University of Minnesota, Minneapolis
Mar. 17	**Special Surgery of the Extremities.** Presbyterian Medical Center, San Francisco

(Continued on page 98)

The Brighter Side

After days of battling the deep snow and feeling the bitter cold of arctic blasts, one recalls lines from a poem that all of us loved in our younger days:

So all night long the storm roared on:
The morning broke without a sun;
In tiny spherule traced with lines
Of Nature's geometric signs,
In starry flake, and pellicle,
All day the hoary meteor fell;
And, when the second morning shone,
We looked upon a world unknown,
On nothing we could call our own.
Around the glistening wonder bent
The blue walls of the firmament,
No cloud above, no earth below,—
A universe of sky and snow!

Or one remembers the lines that Robert Frost was inspired to write after a similar experience:

The way a crow
Shook down on me
The dust of snow
From a hemlock tree

Has given my heart
A change of mood
And saved some part
Of a day I had rued.

The day's end, when one's tasks are done, is a time to dream of warmer places. Escape to the Arizona or Florida sun eludes most of us, but with Emily Dickinson we can indulge in revery:

To make a prairie it takes a clover
and one bee,—
One clover, and a bee,
And revery.
The revery alone will do
If bees are few.

Prophylaxis for Marital Difficulties

In addition to diagnosing and treating diseases, preventing physical illness, coping with psychosomatic complaints and dispensing health advice, the physician is asked to attempt solving individual marriage problems. Often, one of his hours is consumed as a distraught and tearful wife tells him of her troubles with her spouse. He does his best to soothe and to counsel, but he needs help from society as a whole. The high divorce rate in this country attests to the great frequency of unhappy marriage.

In a discussion of psychosomatic gynecology and obstetrics, Marbach,* of the University of Pennsylvania, has presented the seriousness of the problem emphatically: "Preparation of the adolescent girl for a role in life as a wife and mother is unfortunately the most neglected part of her education in our society. Emphasis is often placed on spheres of achievement that have nothing to do with her being a woman. Frequently all her aspiration, education and other activities are directed toward a masculine type of competitiveness and achievement, inhibiting wholly or partially her development as a woman. . . . The adolescent girl who clings to infantile love (to her parents' delight) will be incapable of entering into satisfactory interpersonal relationships or of adequately filling her role as wife and mother."

The developing child's image of marriage is determined primarily by the example that he or she observes at home from day to day. Genuine love and respect are as obvious as integrity and idealism. No amount of acting or deception will fool the child.

Physicians who are confronted with the problems of the unhappy married couple are impressed by the immaturity of either the wife or the husband or both. Parents are prone to prolong a child's dependency, clasping the youngster to their bosoms and encouraging the continuation of his or her infantile love for them. The adolescent must have limits set for him or her, must have guidance, and must be assured of a lasting place in the parents' affection. But the adolescent must gradually be relinquished to make his or her own decisions, to develop initiative, to establish an identity in a larger social sphere, to acquire self-confidence, and to mature emotionally. Parental supervision and direction, on the one hand, and relinquishment, on the other, must be in tenuous equilibrium from day to day, and it is not easy for the wisest parent to know when to hold on and when to let go. Prolongation of dependency jeopardizes the child's maturation, but permissiveness and the imposition of responsibilities beyond the adolescent's capabilities are hazardous.

Undoubtedly there is a part for the schools to play in this process, but it hasn't yet been ade-

* Marbach, A. H.: Study of psychosomatic gynecology and obstetrics. POSTGRAD. MED., 30:479-488, (Nov.) 1961.

quately defined. It is questionable whether knowledge of sex and sex technics helps to qualify the young man or the young woman for marriage. Vastly more important as a basis for happy marriage is, as we have said, the privilege of growing up in a home where he or she subtly becomes aware of the love and respect that marriage partners should have for one another, and is given an opportunity to mature without excessive pressures, to acquire wholesome restraint in consequence of wise discipline, and to learn, by example and by intimate association, those interpersonal relationships which assure a good and happy adjustment in marriage. Growing up in such a home, a child learns the basic truth that mature happiness is the great emotional reward that comes from giving and serving.

Yet if, as Dr. Marbach so clearly suggests, preparation of the adolescent girl for her role of wife and mother is the most neglected part of her education, then our schools should be called upon for help. In secondary schools and colleges, young people should receive formal instruction on the meaning of marriage and the elements that are necessary to make it succeed.

In the meantime, the physician can and should continue playing an important part in assisting parents and in counseling adolescents, but it would appear wise for our schools to place less emphasis on preparing young women to enter business or professional life, and to make a greater effort to equip them for their almost inevitable roles as wives and mothers.

Medical Self-Help Training Course

Dr. Marion E. Alberts, of Des Moines, chairman of the IMS Committee on National Emergency Medical Service, attended a conference in Battle Creek, Michigan, December 3-7, relative to the Medical Self-Help Training Course that is about to be set up in communities throughout the country as a part of the Civil Defense program. Instruction in considerably augmented first-aid care is regarded as essential for at least one member of every household, particularly in the event of nuclear attack, when family groups, each containing some injured individuals, are likely to be isolated for a considerable period of time. Dr. Alberts was in Battle Creek as the IMS representative on the Governor's Advisory Committee on Medical Self-Help, the other members of which are the state commissioner of health, the state superintendent of public instruction and the state director of civil defense.

Dr. Alberts reports that of the 5,000 sets of instructional materials currently ready for distribution, 57 sets have been allocated to the State of Iowa. Additional sets will become available later, but these first few will be distributed through Dr. E. G. Zimmerer's office to public health nurses in most counties. The nurses will conduct the first of the classes, in cooperation with local civil defense directors and the medical committees that have been set up under the auspices of the Iowa Interprofessional Association. Each of the latter groups consists of a physician, a dentist, a veterinarian, a nurse, a pharmacist and a hospital administrator. As this is written, the instructional materials haven't yet been delivered.

Operational plans will be more specifically formulated as texts and syllabi become available in considerable quantities. Members of the IMS will be kept informed.

The Medical Self-Help Training Program has been heartily endorsed by the AMA, for if nuclear radiation were to make it hazardous for anyone to move from underground, doctors—of all people—shouldn't be required to expose themselves by moving about their communities unnecessarily. The doctors of Iowa are urged to arouse the public's interest in this program and to help sustain it.

Acne

Physicians and laymen are confronted by a profusion of available preparations for the treatment of adolescent acne, and exaggerated claims have been made for many of them. In an endeavor to end this confusion and to determine the value of topical therapy as an adjunctive measure in the treatment of this condition, Robinson* and his colleagues at the University of Maryland conducted a study of a large number of patients, using coded preparations. Since each material employed had a code number and no one knew, until the end of the test, which patient received which product, their tabulation of objective results and subjective reactions is significant.

The authors have emphasized that therapeutic measures in cases of acne must be individually tailored for each patient. The general measures ordinarily used are very important. Adolescents need patience, understanding and encouragement. Good rapport between physician and patient is essential if good results are to be obtained. The diet should not include chocolate, nuts, fried foods, butter, pastry, salad dressing or other oily foods, or highly seasoned foods. The patients included in the study were instructed to wash thoroughly with a bland soap every morning and evening. Medication was to be applied twice daily after the cleansings.

The 12 preparations used in the study consisted of various concentrations and combinations of sul-

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* Robinson, H. M., *et al.*: Topical acne therapy. SOUTH. M. J., 54:1105-1110, (Oct.) 1961.

fur, resorcin, neomycin and hydrocortisone. The controls were given the cream base in which the drugs were incorporated.

Of the patients who received topical therapy, 55 per cent showed some improvement, whereas of the patients who received only the cream base, 51 per cent improved. Inasmuch as the results of topical therapy were about equal, regardless of the agent used, and since the placebo apparently had the same therapeutic efficacy, it was assumed that any improvement observed could be attributed to the general measures employed, rather than to any topical application. The authors said, "In view of the results obtained in this study with the placebo preparations, it is probable that local therapy of acne with preparations containing sulfur, resorcin or combinations of these may not have the therapeutic value attributed to them in the past. . . . The incorporation of hydrocortisone in any acne lotion or cream may produce involution of any concomitant seborrheic dermatitis, counteract the irritating effects of sulfur or resorcin, but have no other beneficial effect on the acne lesion."

In a separate study by Robinson, patients were limited to the use of special cleansing pad packets without any other topical application. Each package contained 50 packets of cellulose towels impregnated with a solution containing alcohol, an antiseptic and 0.15 per cent allantoin. After 86 patients with varying degrees of acne had used this method of treatment for periods ranging from two to six weeks, 71 were moderately to markedly improved. From that preliminary study, it was felt that the method had definite merit, was convenient and pleasant, and was highly acceptable to the patients.

In the management of adolescent acne, it is obvious that dependence upon topical therapy alone will prove disappointing. The general measures employed—dietary restrictions, improved hygiene and encouragement from a wise physician—play a more important role in producing good results than does the use of topical applications.

YOU'LL HEAR ABOUT . . .

Medicine's fight to preserve the private system of medical care at the

ANNUAL MEETING OF THE IOWA MEDICAL SOCIETY

May 13-16

Veterans Memorial Auditorium, Des Moines

Smoking Habits

A recent report on a survey of the smoking habits of high-school students in Newton, Massachusetts,[1] has presented some rather startling data. In the study it was ascertained that the share of smokers increased consistently from 4 per cent in the seventh grade to 50 per cent in the twelfth grade. By the time the students reached the twelfth grade, seven in 10 were smokers or discontinued smokers, and in that grade 18 per cent of the boys and 10 per cent of the girls were smoking five or more packs of cigarettes per week. More boys than girls smoked in the seventh to tenth grades; the numbers were equal in the eleventh grade; and more girls than boys smoked in the twelfth grade. In all grades, the boys were heavier smokers than the girls.

Apropos of cigarette smoking by young people, an article by Ann Mullins[2] in LANCET has made a plea for truth in advertising and has deprecated the fact that vast sums are being spent for tobacco advertising directed particularly at young people. She has said, "Few medical men doubt that cigarette smoking is a causal factor in much disease of the lungs. Deaths from carcinoma of the lung continue to increase, so nowadays about 52 people die from it every day, compared (for instance) with 16 on the roads. Chronic bronchitis —a disease which is rare in those who never have smoked—kills about 30,000 people annually and disables many more."

In the BRITISH MEDICAL JOURNAL,[3] it has been reported that £20,000,000 is spent annually to advertise tobacco in the British Isles, and £1,140,000,000 was spent for tobacco there in 1960, of which £1,002,000,000 went for cigarettes. From the expenditure on tobacco, the British government derived a revenue of £826,000,000, which was more than the cost of the National Health Service! Mr. Noel-Baker, a member of parliament, urged that the government undertake a more serious effort to warn young people of the hazards of smoking, and said that the sums expended for that purpose "had been no more than a miserable trickle."

The advertising of tobacco has been forbidden in Sweden since 1956, but surprisingly the consumption of tobacco has not been noticeably reduced.

According to statistics published in our daily newspapers a few weeks ago, Americans spent $6,900,000,000 for cigarettes last year, setting a new record. Sixty per cent of the men and 36 per cent of the women in this country now smoke, and the numbers of young smokers are still rising. By every avenue of communication, the public is assailed by advertisements for tobacco. Sultry-voiced glamor girls sing of the joys conferred by Brand X cigarettes. Professional athletes, having adapted their preferences to suit the highest bid-

der, prate of the superiorities of Brand Y, and first one beauteous young lady and then another gazes soulfully at a babbling brook, while holding a cigarette of Brand Z between her dainty outstretched fingers. Modern tobacco advertising is in poor taste, and it invites the gullible to embrace a habit that is just as much an addiction as is the use of alcohol or drugs.

That cigarette smoking contributes nothing to an individual's health is unquestioned, and its ill effects are generally recognized by the medical profession. If the findings in Newton, Massachusetts, are representative of the smoking habits of the young people in this country, it would appear fitting that a reasonable share of the immense income derived from the taxes on cigarettes should be used by federal and state health agencies to counteract the impact of cigarette advertising. The physical ill effects of smoking and the likelihood of addiction could be presented with much greater emotional appeal than the alleged merits of any "coffin nail."

REFERENCES

1. Salber, E. J., *et al.*: Smoking habits of high-school students in Newton, Massachusetts. New England J. Med., **265**:969-974, (Nov. 16) 1961.
2. Mullins, A.: Advertisements for health: plea for truth. Lancet, **2**:648-653, (Sept. 16) 1961.
3. Medical Notes in Parliament: Tobacco advertising. Brit. M. J., **2**:1158-1159, (Oct. 28) 1961.

Pulmonary Sarcoidosis

A recent article by Hoyle[1] has added significantly to our knowledge of the natural history of pulmonary sarcoidosis, and has led to a classification of the disease into three recognizable types.

Seeing 125 cases of pulmonary sarcoidosis over periods ranging from two to 22 years provided Hoyle unusual opportunities to study the condition. The initial roentgenograms in that group revealed only enlargement of the hilar nodes in 48 patients; pulmonary infiltration and hilar-node enlargement in 62; only pulmonary infiltration in 9; and pulmonary fibrosis in 5.

In the group of 48 patients who initially had only hilar enlargement, seven were eliminated from the longitudinal study because they were treated for a complicating uveitis. In two-thirds of the 41 untreated patients, the enlarged nodes resolved completely within a mean time of one year from recognition, and nodal enlargement did not recur. In four patients, the nodal lesions gradually regressed over several years, but they were left with recognizable nodes. In the remaining patients—some 7 per cent—the nodes remained much enlarged and were thought to be hyalinized. The patients with only nodal enlargement remained well and were free from symptoms of functional defects. In one-fifth of the group with nodal enlargement, pulmonary infiltration developed, usually within one year and rarely after two years. Hilar-node involvement was not seen to occur after pulmonary infiltration, but always preceded or accompanied it.

In the group of untreated patients who had pulmonary infiltration, 41 per cent acquired normal roentgenograms within an average of one year, though clearing did not occur until two or three years in some individuals. After the infiltration had cleared, there were no recurrences. In about 40 per cent of all patients with infiltration, the parenchymal lesion remained unchanged, but in a considerable number there was increasing infiltration for a variable period of time. This group of patients had failed to show lung destruction from fibrosis, and even after many years they had not become respiratory invalids. This group of patients remained well, and were working despite the persistence of their lesions.

Quite in contrast to the relatively benign courses of most of the patients with pulmonary infiltration, in some 19 per cent the course was one of steady deterioration, with slowly advancing invalidism from lung failure. Dyspnea was the main symptom, and became significant after about five years, at the time when the fibrosis was recognized roentgenologically. Bronchiectasis and bronchostenosis developed, and secondary infection was frequent. This type of progressive sarcoidosis resulted in cor pulmonale after about 10 years of illness. Half of the patients with progressive pulmonary sarcoidosis have died, though the mortality in the whole series of 125 patients had been no more than 6 per cent at the time of the report.

From these observations, Hoyle recognizes three types of pulmonary sarcoidosis: (1) benign with spontaneous resolution; (2) chronic but nonprogressive; and (3) chronic and progressive. The outcome depends upon the duration of the active sarcoid process in the lung. To date, the factors which control the time the sarcoid process remains active in the lung are completely unknown. Type 1 can usually be recognized within a year, and Types 2 and 3 can usually be differentiated within two years. It is at times difficult to be sure, even as late as five years after the discovery of the disease, whether a persistent pulmonary infiltration will be progressive and result in severe fibrosis. The progression from Type 2 to Type 3 is best determined by repeated assessment of pulmonary function, particularly the diffusing capacity.

The importance of proper classification of pulmonary sarcoidosis is apparent when it is appreciated that the prognosis and the treatment may depend upon the type of disease. Patients whose disease belongs to Type 1 require no treatment, for the course is self-limited. Patients with Type 2 disease ordinarily have good prognoses,

the disease is compatible with good health and an active life, and the need for corticosteroid therapy is judged on the basis of the clinical course and the results of pulmonary-function tests. Patients with conditions in the Type 3 category require corticosteroid therapy. However, to be effective it must be continued for many years, since the active course of Type 3 sarcoidosis continues for 10 years or more. If steroid therapy is stopped before the cessation of the active process, relapse is inevitable and swift.

Shortly after the publication of Hoyle's study, Scadding[2] reported a very similar experience with 136 patients whom we had observed over a five-year period. When seen initially, 32 patients had hilar-node involvement only; 40 patients had hilar nodes and pulmonary infiltration; 37 patients had pulmonary infiltration without demonstrable hilar-node involvement; and 27 patients were judged to have pulmonary fibrosis when first observed. After five years of observation, only one patient who had only hilar-node involvement had appreciable disability. Of the 40 patients with pulmonary infiltration and hilar-node involvement, only three had moderately severe symptoms that interfered with a normal life. Six patients with pulmonary infiltration only had moderate disability after five years. During the period of observation, six of the 27 patients with pulmonary fibrosis died from sarcoidosis, but when first seen this group of patients had been ill for an average of 5½ years. Ten of the patients remained unchanged; seven showed some improvement; three became worse; and one patient died from an unrelated cause.

Concerning corticosteroid therapy of pulmonary sarcoidosis, Scadding said: "Observation both of the present series and of subsequent cases of sarcoidosis has led me to the firm opinion that corticosteroids have no effect upon the principal criterion of prognosis adopted in this analysis—namely, the attainment and maintenance of a normal chest radiograph with freedom from symptoms." He pointed out that when the manifestations of the disease are in a reversible stage, they can be suppressed by administering corticosteroids, but when therapy is withdrawn, the disease may return to its former state, may seem to have been "cured" in that its does not reappear, or may recrudesce to a worse state than formerly. Both Hoyle and Scadding conclude from their experience that the ultimate outcome of the disease is not significantly altered by corticosteroid therapy.

REFERENCES

1. Hoyle, C.: Prognosis of pulmonary sarcoidosis. Lancet, 2:611-615, (Sept. 16) 1961.
2. Scadding, J. G.: Prognosis of intrathoracic sarcoidosis in England; review of 136 cases after five years' observation. Brit. M. J., 2:1165-1172, (Nov. 4) 1961.

Cortisone in Kerosene Pneumonia*

Pneumonia has long been known as a major complication of the ingestion of kerosene and other petroleum products. Although mild central nervous system depression is frequently described as an aftermath of such ingestion,[1, 2] the number of severe central nervous manifestations (including coma and convulsions) is relatively small, ranging from 3 to 6 per cent.[1-3] Pneumonia, on the other hand, is said to occur in from 30 to 48 per cent of cases,[1-5] and if the number of cases of pneumonia found is compared to the total number x-rayed, the percentage is even greater. The majority of authors[3-8] contend, on the basis of clinical observations and experimental results, that the major hazard of kerosene ingestion is that of aspirating the material and developing pneumonia, but agreement is by no means unanimous.[9] Richardson and Pratt-Thomas,[6] extrapolating from experiments with dogs, calculated that more than a pint of kerosene would be required to kill a 50-pound child, whereas 5 ml. intratracheally would cause a severe illness which would probably be fatal. Since intravenous kerosene has been shown also to cause a severe pneumonia,[8, 9] especially when injected rapidly, it is difficult to be certain about the pathogenesis of this complication in clinical situations, but the weight of evidence at present suggests that aspiration is the most important mechanism causing pneumonia after kerosene ingestion. At any rate, pneumonia occurs frequently, is sometimes serious, and seems to be implicated often as a direct or indirect cause of death in fatal cases. The need of an effective treatment for such pneumonia is thus apparent, and, since the pneumonia is presumably the manifestation of an acute inflammatory response to the presence of kerosene, attacking the problem by suppression of this response seems a reasonable approach.

Cortisone has been shown to suppress all elements of wound healing in certain laboratory animals,[10-13] an effect which included almost complete suppression of the formation of granulation tissue[13] and inhibition of phagocytic activity, as evidenced by failure of carbon particles to be transported from the peritoneal cavity to the regional lymph nodes.[12] Cortisone pretreatment also suppressed chemically-induced inflammation in mice,[14] and treatment with cortisone after challenge with turpentine tended to have the same effect, although the effect was not as marked. These effects were accompanied, however, by greater extension of necrosis in treated animals than in controls. Cortisone inhibits the growth of adult fibroblasts and markedly retards the migration of white blood cells *in vitro*.[15]

In 1952 Nassau[16] reported the use of cortisone

* From the National Clearing House for Poison Control Centers, June, 1961.

in the treatment of kerosene pneumonia in three children. He used a single injection of 50 mg. of cortisone and obtained impressive clinical responses in all three patients. In view of the demonstration that various adrenocortical steroid preparations are capable of inhibiting acetylcholine and pilocarpine-induced (and to a lesser extent histamine-induced) contractions of smooth muscle from several organs, including the trachea,[17] Nassau's interpretation that the pulmonary changes following kerosene ingestions are due to bronchial obstruction and bronchospasm is interesting. He believed that his single injection of cortisone relieved the bronchospasm and allowed the expectoration of the obstructing liquid.

Graham[18] reported impressive clinical responses on two occasions in a single adult patient in whom cortisone was first used 14 days after aspiration of crude oil, after antibiotics had failed to clear up either the lung reaction or the symptoms of cough, fever, and respiratory distress. The symptoms improved, only to worsen 2 weeks later on gradual withdrawal of the cortisone. Cortisone, 300 mg./day, was begun again, and again the symptoms abated, remaining under control for the nine-month duration of cortisone treatment. There was not, however, a clear demonstration that the cortisone favorably affected the lung changes, as evidenced by the chest x-ray.

Mayock et al.[19] recently reported another single case of kerosene pneumonia treated with adrenocortical steroids. This patient had severe symptoms, including dyspnea, hemoptysis, and pleuritic pain, and also had clinical and radiologic evidences of considerable lung involvement. Thirteen days following ingestion, the inception of prednisone treatment was followed by dramatic diminution of the symptoms and, perhaps, some evidence of x-ray clearing. Withdrawal of the steroid 9 days later was accompanied by exacerbation of the symptoms, but improvement was again obtained with triamcinolone, although the production of sputum containing some blood continued. This patient eventually underwent a right middle lobectomy for bronchiectasis and "lipoid pneumonia."

Arena[20] has used adrenocortical steroids to treat a few patients who were seriously ill with kerosene pneumonia and believes that the results have been most beneficial. The only controlled series of patients treated with steroids for this condition revealed no advantage of treatment with 40 mg./day of prednisone over more conventional therapy,[21] but the objection may be raised that none of these patients was severely ill, and it is in serious cases that adrenocortical steroids would be expected to demonstrate their greatest effect.

The case for using adrenocortical steroids in kerosene pneumonia receives some support by analogy with their effect in treating pulmonary irritation from certain other substances. Holmes[22] believes that he has markedly improved the clinical courses of seven patients who were treated with prednisone or ACTH soon after inhaling chlorine gas. In another patient a delay of six hours occurred before treatment was begun, and this patient had a long and severe hospital course. There was a general feeling that adrenocortical steroids benefited a number of patients who had aspirated gastric contents during anaesthesia;[23] pretreatment with prednisone protected guinea pigs from the effects of the inhalation of chloropicrin;[24] and prednisone has seemed to allay symptoms following nitrogen dioxide inhalation.[25, 26]

In general, therefore, there are some indications that the adrenocortical steroids may be of use in the treatment of hydrocarbon pneumonia, but this has not, as yet, been proven. Graham,[18] although he thought cortisone beneficial in his case of crude-oil inhalation, suggested that in the case of inhalation of a rapidly spreading substance like kerosene the substance may be more harmful than the inflammation it produces. In this case, he suggested, the inflammation may serve to inhibit the spreading of the toxic material, and inhibition of the inflammation might be undesirable. All things considered, it would seem that the use of adrenocortical steroids deserves an extensive, carefully controlled trial in the therapy of hydrocarbon pneumonia.

REFERENCES

1. Olstadt, R. B., and Lord, R. M.: Kerosene intoxication. AMA Am. J. Dis. Child. **83**:446, 1952.
2. McNally, W. D.: Kerosene poisoning in children; study of 204 cases. J. Ped. **48**:296, 1956.
3. Lesser, L. I., Weens, H. S., and McKay, J. D.: Pulmonary manifestations following ingestion of kerosene. J. Ped. **23**:352, 1943.
4. Waring, J. I.: Pneumonia in kerosene poisoning. Am. J. Med. Sci. **185**:325, 1933.
5. Foley, J. C., Dreyer, N. B., Soule, A. B., and Woll, E.: Kerosene poisoning in young children. Radiology **62**:817, 1954.
6. Richardson, J. A., and Pratt-Thomas, H. R.: Toxic effects of various doses of kerosene administered by different routes. Am. J. Med. Sci. **221**:531, 1951.
7. Gerarde, H. W.: Pathogenesis of pulmonary injury in kerosine intoxication. Delaware M. J. **31**:276, 1959.
8. Gerarde, H. W.: Toxicologic studies on hydrocarbons V. Kerosine. Toxicol. Appl. Pharmacol. **1**:462, 1959.
9. Deichmann, W. B., Kitzmiller, K. V., Witherup, S., and Johansmann, R. J.: Kerosine intoxication. Ann. Int. Med. **21**:803, 1944.
10. Ragan, C., Howes, E. L., Plotz, C. M., Meyer, K., and Blunt, J. W.: Effect of cortisone on production of granulation tissue in rabbit. Proc. Soc. Exp. Biol. Med. **72**:718, 1949.
11. Howes, E. L., Plotz, C. H., Blunt, J. W., and Ragan, C.: Retardation of wound healing by cortisone. Surgery **28**:177, 1950.
12. Spain, D. M., Molomut, N., and Haber, A.: Biological studies on cortisone in mice. Science **112**:335, 1950.
13. Spain, D. M., Molomut, N., and Haber, A.: Effect of cortisone on the formation of granulation tissue in mice (abstract). Am. J. Path. **26**:710, 1950.
14. Spain, D. M., Molomut, N., and Haber, A.: Studies of the cortisone effects on inflammatory response. I. Alterations of histopathology of chemically induced inflammation. J. Lab. Clin. Med. **39**:383, 1952.
15. Geiger, R. S., Dingwall, J. A., and Andrus, W. DeW.: Effect of cortisone on growth of adult and embryonic tissue in vitro. Am. J. Med. Sci. **231**:427, 1956.
16. Nassau, E.: Uber die Behandlung der aspiration von petroleum mit cortison. Ann. Pediat. **178**:181, 1952.
17. Bass, A. D., and Setliff, J. A.: *In vitro* actions of steroids on smooth muscle. J. Pharmacol. Exp. Ther. **130**:469, 1960.
18. Graham, J. R.: Pneumonitis following aspiration of crude oil and its treatment by steroid hormones. Trans. Amer. Clin. Climat. Ass. **67**:104, 1955-6.
19. Mayock, R. L., Bozorgnia, N., and Zinsser, H. F.: Kerosene pneumonitis treated with adrenal steroids. Ann. Int. Med. **54**:559, 1961.

20. Arena, J. M.: Personal communication.
21. Hardman, G., Tolson, R., and Baghdasserian, O.: Prednisone in management of kerosene pneumonia. Indian Practit. **13**:615, 1960.
22. Holmes, A. W.: Steroid therapy in acute pulmonary edema due to chlorine inhalation. To be published.
23. Marshall, B. M., and Gordon, R. A.: Vomiting, regurgitation, and aspiration in anaesthesia. Canad. Anaes. Soc. J. **5**:438, 1958.
24. Prasad, B. N.: Role of prednisone in acute pulmonary edema. Arch. Int. Pharmacodyn. **114**:146, 1958.
25. Lowry, T., and Schuman, L. M.: "Silo-filler's disease"—a syndrome caused by nitrogen dioxide. J. Am. Med. Ass. **162**:153, 1956.
26. Gailitis, J., Burns, L. E., and Nally, J. B.: Silo-filler's disease, report of a case. New Eng. J. Med. **258**:543, 1958.

Hazards in Do-It-Yourself Laundries

An Indiana patron of an automatic laundry was asked by his daughters, aged nine and seven years, for two nickels with which to buy soft drinks. When, after a few minutes, he looked for the girls to find where they could buy such low-priced refreshment, he found them with two unmarked paper cups containing a clear liquid. Only the elder girl had drunk any of it, and she had promptly spat it out. The liquid, however, turned out to be a bleach containing up to three per cent available chlorine. It had come from an easily operated vending machine with a coin slot 42 inches from the floor.

In addition, it is said that an Illinois firm has recently circulated a letter seeking to persuade automatic vending device operators to buy and manage aspirin-dispensing machines.

The medical profession should be alert to this relatively new source of poisons.

New Physician's Guide on Anticoagulants

A new booklet to provide physicians with guiding principles and practical recommendations for the use of anticoagulant drugs has been issued by the American Heart Association.

Entitled "A Guide to Anticoagulant Therapy," the booklet contains material designed to aid the physician who has decided to institute anticoagulant therapy in making the most effective use of these drugs. It does not consider the indications for therapy or the merits of different agents in the prophylaxis or treatment of specific diseases.

The two types of agents currently employed—heparin and coumarin-type compounds—are discussed with reference to their physiologic effects, administration, contraindications and appropriate antidotes. Fibrinolytic agents (either used alone or in combination with anticoagulants) are not included "because there has not been enough clinical experience to permit recommendations."

The publication emphasizes the importance of individualized treatment, careful clinical observation, and frequent reliable laboratory tests. In addition, many common problems of anticoagulant therapy are discussed in question and answer form. The booklet also contains several tables and selected references.

The guide originally appeared as an article in the July, 1961, issue of CIRCULATION, one of three professional journals issued by the Association. It was prepared for the organization's Committee on Professional Education by Benjamin Alexander, M.D., and Stanford Wessler, M.D., of Beth Israel Hospital, Boston.

Copies of the booklet may be obtained by physicians from Iowa Heart Association, 2100 Grand Avenue, Des Moines 12, Iowa.

County Societies to Get New Public Service Ads

A new venture in public service advertising was launched by the American Medical Association in January.

Every county medical society was sent the first six in a series of public service messages, with the recommendation that these ads be placed in local newspapers.

The ads are simple, straightforward and nonpolitical. Each message is "open end" so that a medical society can add appropriate local information. The first six ads cover these subjects:

- Choosing a family doctor
- Medical society grievance committees
- Doctor-patient relationship
- Why MDs promote immunization
- Medicine's traditional guarantee of care for all
- Cost of medical care

Jim Reed, the AMA's Communications Division director, says the ads will help medical societies fulfill their educational responsibilities to the public and at the same time improve medical press relations.

"For years newspaper publishers have resented medicine's unwillingness to buy space to tell the people its views on specific subjects. What doctors considered conformity to medical ethics was construed as niggardliness by the press," Reed said.

"Medicine's traditional reluctance to call attention to itself allows many a criticism to go unchallenged. Several medical societies have pioneered by placing institutional ads in local papers. These ads, styled as public service messages, have been extremely well received by the public and the newspaper profession."

The new series of public service ads has long been recommended by AMA's Communications Advisory Committee, composed of representatives from state and county medical societies. The next six in the series, with accompanying art work if societies choose to use it, will be ready early in February.

In Memoriam

Lester Davis Powell was born in Villisca, Iowa, on March 18, 1891, and spent his early childhood in Red Oak. After his graduation from the Red Oak High School, he attended Iowa State College (now Iowa State University). He then attended and graduated, successively, from the College of Liberal Arts and the College of Medicine at the State University of Iowa, and in 1918-1919 served an internship at University Hospitals, in Iowa City.

Following his graduation, Dr. Powell was, for a short time, an assistant to Dr. Rowan, then a professor of surgery at S.U.I. From 1919 until 1926, Dr. Powell was at the Mayo Clinic, first as a resident in surgery and subsequently as a staff surgeon. He was first assistant to Dr. Charles Mayo and Dr. W. J. Mayo. He also took special work in obstetrics and gynecology at the New York Lying-In Hospital under the auspices of the Mayo Clinic.

In 1926, Dr. Powell entered private practice in Des Moines as a general surgeon, and became a staff member at Iowa Lutheran Hospital, Iowa Methodist Hospital and Mercy Hospital.

On December 13, 1941, he was called into active service in the Medical Corps of the United States Navy. He served at the Long Beach Naval Hospital, at the Santa Marguerita Naval Hospital, at Oceanside, California, and at the Pearl Harbor Naval Hospital. When he was discharged, in February, 1946, he had attained the rank of captain.

Dr. Powell was a member of the Polk County Medical Society, of the Iowa Medical Society, of the American Medical Association, of the American College of Surgeons, of the Western Surgical Society, of the Medical Library Club, of the Des Moines Rotary Club, of the Des Moines Club, and of the Central Presbyterian Church, in Des Moines. He was a member of the board of the Des Moines Health Center and at various times was president of the Mayo Alumni Association, and of the Polk County Medical Society, and a member of the Des Moines Chamber of Commerce and of the Simpson College Board of Directors.

In addition to the above, Dr. Powell was a member of Sigma Xi honorary science research society, Alpha Omega Alpha, honorary medical fraternity, Nu Sigma Nu medical fraternity, and Sigma Alpha Epsilon social fraternity. Through the years, he was author and co-author of numerous surgical articles.

In 1950, Dr. Powell was appointed director of the health department of the Des Moines Public Schools on a part-time basis, and in 1956 he became the department's first full-time director. He retired from that position in July, 1961.

Dr. Powell's death occurred very suddenly on December 30, 1961, when he was 70 years of age, as the result of a coronary occlusion. At the time of his death he was a professor of clinical surgery at the State University of Iowa, a consultant in surgery at the Veterans Administration Hospital in Des Moines, and a member of the Dean's Committee at that institution.

Lester Davis Powell, M.D.

He is survived by his widow, Faye Ellis Powell; a daughter, Sally Ann Alexander and a granddaughter, Lesley Ann Alexander, both of Owatonna, Minnesota; and two sisters, Mrs. Velma Petty, of Red Oak, and Mrs. Melinda Werisch, of Creston.

With the passing of Dr. Powell, the medical profession in Iowa has lost a surgeon of great judgment and ability, and also one who upheld the high ethical standards and integrity of the profession.

Film on Stroke Diagnosis

A new professional film on strokes, which stresses the need for accurate differential diagnosis because of therapeutic advances in the field, has been produced by the American Heart Association and its affiliates.

Entitled "Cerebral Vascular Diseases: The Challenge of Diagnosis," it presents three case histories involving cerebral thrombosis, hemorrhage and embolus and depicts methods for proper diagnosis in each case.

The color film runs approximately 30 minutes and is available for purchase or loan from Iowa Heart Association, 2100 Grand Ave., Des Moines 12, Iowa.

President's Page

The Iowa Medical Society is cooperating with Cornell University in a research project to study the causes and effects of injuries and deaths resulting from accidents involving late-model passenger cars.

We consider this to be a very important and worthwhile study, and urge physician support.

The program will be initiated on February 1, involving 31 counties in southwestern Iowa. Eventually, all counties will be asked to participate in this 2-year program.

The "In the Public Interest" section of this JOURNAL provides details on the safety program.

President

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

THE PHYSIOLOGY AND PATHOLOGY OF LEUKOCYTES, ed. by *Herbert Braunsteiner*, M.D. (American edition prepared and revised by *Dorothea Zucker-Franklin*, M.D.) (New York, Grune & Stratton, Inc., 1962. $15.00).

THE DYNASTY, by *Charles H. Knickerbocker*, M.D. (New York, Doubleday & Co., 1961. $4.50).

MEDICAL GENETICS 1958-1960, by *Victor A. McKusick*, M.D. (St. Louis, The C. V. Mosby Company, 1961. $14.50).

FUNDAMENTALS OF GENERAL SURGERY, SECOND EDITION, by *John Armes Gius*, M.D. (Chicago, The Year Book Publishers, Inc., 1962. $11.50).

HYPERTENSION, ed. by *Albert N. Brest*, M.D., and *John H. Moyer*, M.D. (Philadelphia, Lea & Febiger, 1961. $12.00).

HALOTHANE, by C. *Ronald Stephen*, M.D., and *David M. Little, Jr.*, M.D. (Baltimore, The Williams & Wilkins Company, 1961. $6.00).

STRONG MEDICINE, by *Blake F. Donaldson*, M.D. (New York, Doubleday & Co., 1962. $3.95).

BOOK REVIEWS

THE HOUSE OF HEALING, by *Mary Risley*. (New York, Doubleday & Co., 1961. $4.50).

Mary Risley is a lay woman who is interested in hospital work. She has written the first complete history of the hospital ever published for the lay public. The book is modest sized, printed in large type, and describes not only the actual mechanics of hospital growth, but correlates that development with the changing political and social background in which it occurred. She describes the influence of primitive medicine, various civilizations and the church upon the institutional care of the sick. She then relates the influence exerted by Florence Nightingale and recent scientific advances upon the development of hospitals, and ends with a prediction of things to come.

The book is written in a historical and philosophical vein. The author traces various forces as they have affected hospital care. She is less concerned with hospitals themselves than with the factors that have altered the hospitals, and thus it is only natural that she would conclude with the concept that hospitals have grown too large, scientific and impersonal, and it is no less natural that she should suggest that a spirit of kindness, thoughtfulness and forbearance needs to be reinstilled into hospital administrators, nurses, doctors and elevator operators.

Records of early hospitals are scanty, and the author appears to have shunned the sordid details of hospitals in the late Middle Ages, but she does leave the reader with several general concepts about forces acting to alter the hospital care of patients, so that one ends with ideas rather than facts. That, perhaps, was what she was after all of the time.—*Daniel A. Glomset*, M.D.

PATHOLOGY, FOURTH EDITION, ed. by *W. A. D. Anderson*, M.D. (St. Louis, The C. V. Mosby Company, 1961. $18.00).

The fourth edition of Anderson's PATHOLOGY is welcomed because of the addition of newly recognized entities and significant discussions of the more basic concepts and conditions. Subjects such as the carcinoid syndrome, pulmonary alveolar proteinosis and aldosteronism are now included. The authors have drawn upon new technics such as electron microscopy and advanced histochemistry in rewriting their respective sections.

The book is the most encyclopedic one-volume work in the field of general pathology. It is a favorite of medical school faculties, and it is of inestimable value to the practicing pathologist as an initial reference. The book is a "must" for hospital libraries. It is difficult to imagine a practicing physician to whom it would not be useful.

The lists of references following the respective chapters are well-selected and include the significant works that one should include in any further study of the topics. A significant improvement in the fourth edition over the third is the uniform size of the type. An improved format also helps make the text more readable.—*David Baridon, Jr.*, M.D.

TRAUMA: ANATOMY AND SURGERY FOR LAWYERS, Vol. 3, No. 3. (a bi-monthly periodical published by Matthew Bender & Co., Inc., 205 E. 42nd Street, New York City 17, $35.00 per year).

This series is designed to provide lawyers with authoritative medical information for courtroom use. Although designed primarily for lawyers, it will prove a valuable tool to physicians who may be called upon to testify at trials. It is well illustrated, contains anatomical charts for courtroom use, an extensive bibliography for further research, and a medical vocabulary-builder designed primarily to help lawyers learn to speak the doctors' language.

Volume 3, Number 3, released October 30, 1961, contains an editorial by Marshall Houts, LL.B., entitled "Impartial Medical Testimony: Ivory Tower Monster," which takes issue with the endorsement by the AMA House of Delegates of the concept of nonpartisan medical testimony. The editor expresses the opinion that there is no such thing as "impartial" or "nonpartisan" testimony by physicians because every doctor is "partial" to his own opinion, and once having expressed that opinion, he will defend it in the courtroom. He concludes that the problem of conflicting expert testimony will not be solved by discarding the adversary system in so far as medical witnesses are concerned.

He suggests, further, that the medical profession be taught not to abhor the courtroom but to feel comfortable in it.

Included in the same issue is an article entitled "Anatomy and Physiology of the Skin," by Hermann Pinkus, M.D., of Detroit; one entitled "Contact Dermatitis," by Sidney Olansky, M.D., of Emory University; and one entitled "Trauma to the Kidney," by James F. Glenn, M.D., of Yale University. Following the article on contact dermatitis, the editor has presented a complete direct and cross examination of a medical witness on that subject which should prove valuable not only to a lawyer who is preparing a case dealing with that subject but also to a physician who is preparing to testify on it.

In publishing TRAUMA, Matthew Bender & Company are providing the legal and medical professions with a valuable and useful working tool.—*Dale S. Missildine*, J.D.

THE NATURE OF SLEEP, A CIBA FOUNDATION SYMPOSIUM, ed. by *G. E. W. Wolstenholme*, M.B., B.Ch., and *Cecilia M. O'Connor*. (Boston, Little, Brown & Co., 1961. $10.00).

The preface states that "sleep is a most attractive subject for discussion." The prefatory remarks conclude: "The Ciba Foundation will be well rewarded if this book awakens fresh interest and stimulates new experiments to unravel the mysteries still surrounding one-third of our natural life."

Neurophysiologic evidence points to the existence of sleep-inducing and EEG-synchronizing structures in the brain stem. In other words, there is, during sleep, a considerable diminution in the activity of the ascending and descending reticular activating systems—a "reticular deactivation." One concept is that sleep arrives as a process of passive reticular deactivation due to physiologic "deafferentation." Another concept is that an active reticular deactivation can be produced by descending effects from the cortex and by ascending effects from the medulla. Additional papers deal with measured neuronal activity in animals during arousal and induced sleep.

A practical note is introduced by a contribution entitled "Electroencephalographic Detection of Sleep Induced by Repetitive Sensory Stimuli." It points out that rhythmically repeated sensory stimuli exert a hypnotic effect, and that safety engineers should take note of this phenomenon. Other practical matters are discussed in "Hibernation and Sleep," with applications to hypothermic anesthesia.

For the most part, this volume is profoundly scientific, and the presentations are accompanied by many graphs, oscilloscopic recordings, etc. However, a few items of useless though perhaps interesting information can be found. The careful reader finds that "a horse not in its own stable never lies down; it only sleeps lying down when it is at home," and that "a hedgehog in Finland hibernates for seven months, but in this country its hibernation is much shorter." And he can learn that men on polar expeditions, though at liberty to sleep as long as they wished, slept no more than eight hours at a time, on the average. Moreover, he is told that in congenitally conjoined twins, each twin has his own sleep rhythm, independent of the other, and that during dreaming, there occurs a jerky movement of the eyes.

THE NATURE OF SLEEP serves the useful purpose of presenting in a single volume the current knowledge and thinking about sleep, just as other volumes in the Ciba Foundation Series have altogether admirably brought together current knowledge and recent findings in other areas.—*John T. Bakody*, M.D.

DISTURBANCES OF HEART RATE, RHYTHM AND CONDUCTION, by *Eliot Corday*, M.D., and *David M. Irving*, M.D. (Philadelphia, W. B. Saunders Company, 1961. $8.50).

This book is a comprehensive survey of cardiac arrhythmias. It gives explanations of mechanisms, physiological effects, recommended methods of therapy, and expected results of treatment. In addition to sections that are standard in texts on arrhythmias, separate chapters are included dealing with arrhythmias following or resulting from myocardial infarction, surgery and anesthesia, and electrolyte disturbances. The final chapter deals with the effects of 19 agents on various problems.

Classifications of arrhythmias by type, by etiology and by method of therapy allow easy and complete fact-finding on all possible problems in this field.—*John E. Gustafson*, M.D.

THE PARENCHYMA OF LAW, by *David W. Louisell* and *Harold Williams*. (Rochester, N. Y., Professional Medical Publications, 1961. $12.50).

The authors, one of them a professor of law and the other a doctor-lawyer, begin with the assumption that due in part to the "fragmentation of learning," there has been a decline in understanding of the medical profession by the legal profession, and *vice versa*. Their stated purpose ". . . is to try to present to the physician an objective view of law as it actually is administered in the U. S., to aid him intelligently and unemotionally to appraise its purposes, processes, failures and achievements."

The book consists of four sections, and has a total of 16 chapter headings. The sections are entitled: "The People Who Participate," concerning lawyers, judges and juries; "The Lawmakers—Public and Private," dealing with legislators and judges, and with the medical profession's self-government; "Riddles and Realities," covering the legal standards of diagnosis and prognosis, trial mechanics, the doctrine of *res ipsa loquitur*, the statute of limitations, the liability of hospitals' and lawyers' contingent fees; and "Dynamics of Change," including sub-topics such as the law of tomorrow and some philosophical observations on medicine, law and justice.

The contrasts between the lawyer's adversary method and the doctor's objective inquiry are the crux of medical-legal misunderstandings, in this reviewer's opinion. General medical ignorance of the law and of specific legal procedures contributes to these misunderstandings. The physician who makes use of the information in this book will gain a better comprehension of and even some sympathy for the law. It should be pointed out that this volume is not a compendium of answers to medicolegal problems, but rather fills an important gap in the curricula of most medical schools.

The book is well written, and since it is slanted for the medical reader, physicians will find it most interesting. Your reviewer enthusiastically recommends it.—*John T. Bakody*, M.D.

MEDICAL PHYSIOLOGY, ELEVENTH EDITION, ed. by *Philip Bard,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $16.50).

The eleventh edition of this excellent text has been written by 16 outstanding authorities in special fields of physiology. It is designed for the medical practitioner, the student and the medical scientist, and presents the applications of physiology to medical practice. There are nine parts, each covering the present knowledge of the physiology of one of the body systems.

Reviewing a text on so broad a subject as this is difficult. The book certainly provides fundamental information. A knowledge of pulmonary physiology is necessary, for example, if one is intelligently to interpret present-day pulmonary function studies, and a thorough understanding of the many complex factors in the coagulation of the blood are important to have if one is to treat bleeding disorders wisely.

This text is a splendid reference work for the student and for the practitioner.—*Dennis H. Kelly, Sr.,* M.D.

ONE FOR A MAN, TWO FOR A HORSE, by *Gerald Carson.* (New York, Doubleday & Co., 1961. $6.50).

This book is a souvenir, in words and pictures, of the nostrums and health paraphernalia of long ago, of the picturesque characters who thought them up, and of the ingenious methods used in selling them. If you think television advertisements for patent medicines threaten the health or insult the intelligence of the American citizen, reading this book will make you think them altogether tame. One is amazed at how the public can have been so gullible, for example, as to spend $5,000,000 for Hadacol.

I don't recommend this book to anyone who is looking for medical knowledge, but admittedly it is entertaining and full of laughs. The four-color printing in which the dozens of ads have been reproduced is doubtless responsible for the high cost of the book, and if the prospective buyer is interested in the history of advertising, perhaps it is worth the price. But for the busy physician, it is worth neither the money that it sells for nor the time it takes to peruse it.—*Leonard G. Gangeness,* M.D.

ESSENTIALS OF NEUROSURGERY FOR STUDENTS AND PRACTITIONERS, by *Sean Mullan,* M.D. (New York, Springer Publishing Co., Inc., 1961. $6.75).

Although some medical fields have many texts, the field of neurosurgery has relatively few. Whatever the reasons for scarcity of books on this specialty, however, the present volume is a happy contribution.

In the preface, the author says: "With this book, I have attempted to provide a framework of neurosurgical knowledge useful both to the student and to the established practitioner." The subjects discussed include radiologic anatomy, epilepsy, brain and spinal cord tumors, pain, head and spine injuries, intervertebral disc disease, aneurysms, brain abscesses, involuntary movements, peripheral and sympathetic nerves, pediatric neurosurgery, and the history of neurosurgery. These topics are concisely presented in a conventional, noncontroversial fashion.

This terse, straightforward text should be of great value to those who would like a concise description of neurosurgical conditions, as well as to students, internes and residents who need a convenient reference work.—*John T. Bakody,* M.D.

Education in Hospital Costs

Students at Jefferson Medical College Hospital, in Philadelphia, learn to consider the cost as well as the need for diagnostic tests ordered for patients, according to an editorial comment in the January 1, 1962, issue of the NEW YORK STATE JOURNAL OF MEDICINE. Each student, as he works as a ward clerk, is given a list of the standard charges for various procedures and tests. On at least two of his patients, he keeps a running chart of the costs of the tests and other diagnostic procedures that are ordered. A glance at the running chart dramatizes for each student how the total cost adds up. Group discussions of the cost factor help sharpen the analysis of indications for a procedure and the evaluation of benefits to be obtained thereby.

This concern for cost has helped stimulate discussion of the nature of the disease, the distribution of lesions, and the possibilities to be ruled out in the differential diagnosis. The simple questions "Do we need it?" and "Why?" are not dissociated from a consideration of the characteristic picture of a disease process and of the pathologic physiology.

When ordering studies of any sort, the students learn to consider the total state of the patient—including his financial situation.

"This pioneering work bears repetition in all our hospitals," the editors of the NEW YORK JOURNAL declared. "Attending staffs as well need this indoctrination."

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing on page ix in this issue:

FONTANA and EDWARDS—CONGENITAL CARDIAC DISORDERS
a vital statistical study to aid you in a better understanding of malformations of the heart.

WILLIAMS—Textbook of ENDOCRINOLOGY
a definitive source emphasizing the effects of endocrine changes on body metabolism.

1962 CURRENT THERAPY
today's best treatments—ranging from external cardiac massage for cardiac arrest through current use of antibiotics in treating bacterial infections.

Iowa Association of Medical Assistants

Reception Room Reading Matter

Every now and then it's a good idea to review the magazines and leaflets that are on the tables in your reception room, and to throw away the outdated ones. And while you're at it, why not order some new materials from the AMA?

The AMA has a number of pamphlets that can be left for patients to read in your reception room, or can be used as stuffers with monthly statements. The following are free in whatever quantities you need:

- TO ALL MY PATIENTS—a doctor-patient leaflet explaining the types of medical services that are often involved in treating a patient
- DO YOU LIKE MAKING DECISIONS?—a leaflet emphasizing that it is a doctor's judgment, not just wonder drugs and medical machines, that is most important in personal medical care
- THE FIFTH FREEDOM—a folder describing the value of a patient's right to choose his own physician
- A FAMILY DOCTOR'S FIGHT AGAINST SOCIALIZED MEDICINE—a reprint from LOOK telling how a small-town GP spoke up for private medical practice
- AMERICA, BEWARE OF THE WELFARE STATE—a reprint from the READER'S DIGEST pointing out the perils of governmental cradle-to-grave planning.

Write today to Mrs. Carol Brierly, director, Special Services Division, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois, for supplies of these booklets.

The Handling of Our Employers' Money

Receiving and disbursing money are two of the more important tasks that are entrusted to the medical assistant.

Without going into the intricacies of bookkeeping, let me begin by saying that ALL income and ALL expenditures must be recorded, regardless of their size. A receipt should be made in duplicate for each sum received, and the sum must be credited to the proper account. The receipt must show the date, the name of the individual who has made the payment, the name of the person whose account is to be credited, the amount received, whether by cash or by check, the balance due and the name or initial of the person receiving the payment. If printed receipts are used, they bear the name of the doctor; if not, his name should appear above the name or initial of the person who is taking the payment.

Sufficient small-denomination bills and coins should always be available to change a $20 bill. That money, together with the cash receipts that have accumulated during the day, should be kept in a cash box or drawer in the assistant's desk, where it is accessible to her but out of reach of the public.

In addition, a petty cash fund should be maintained for the payment of postage, express charges and other small bills that must be met on short notice and in cash. From $5 to $25 is usually adequate for these purposes, but even though payments from this fund are small ones, a careful record must be kept of each one. Receipts, vouchers or receipted bills should be secured from the payees, when possible, and should be carefully kept. At the end of each month, one replenishes the fund by drawing a check to petty cash for the exact amount by which it has been depleted during the month.

The medical assistant should be careful about accepting payments by check. Even if the patient is well known to her, she should always read his check carefully to make sure that the date, amount and signature are correct. If the patient is a stranger, she should ask for credentials or identification. *Social Security cards are not considered good identification.* She should never accept a check bearing a correction.

Returned checks occasionally present problems. Usually they have been returned for "insufficient funds," and the bank has either charged the amount to the doctor's account and returned the check to him, or has notified him that it is holding the check for him to redeem. In either case, the matter requires the medical assistant's immediate attention.

Usually, "NSF" checks have resulted from carelessness, and their authors apologize embarrassedly and ask that the check be sent again to the bank, promising in the meantime to deposit enough money to cover it. However, if the patient is a poor credit risk, the medical assistant should insist that he redeem the check at the doctor's office, and should set a deadline for his doing so. In this connection it is useful to know that in Iowa it is a felony to bounce a check for more than $20. If the medical assistant is careful, she can use that bit of information without making an enemy for herself or her employer.

If one wishes the bank to collect from the author of the check, it will do so for a small fee. If the check has been drawn on an out of town bank and has passed through the Federal Reserve Clearing House, it may be returned together with a request that it be sent through a second time. If the medical assistant collects from the individual who wrote the check, she should then give the check back to him.

A restrictive endorsement should be stamped on the back of each check as soon as it is received. That is done by means of a rubber stamp that prints "Pay to the order of (name of bank) for deposit only to the account of (name of doctor)." Thereafter, the check is non-negotiable in case of loss or theft.

Total receipts must be deposited daily. Nearly all banks have night-depository slots beside their doors and/or bank-by-mail arrangements that are safer and more convenient than any office hiding-place.

One should make out each deposit slip in duplicate, listing the checks by city, ABA number and amount. If more than one deposit slip must be used, the currency and silver should be listed on the slip bearing the total of the deposit. The adding machine slip, if any, should be attached to the deposit slip(s), and the largest demoninations of bills should be at the top of the currency stack, with all bills facing right-side-up.

—HELEN G. HUGHES

The Incidence of Peptic Ulcer

Some 2,500,000 Americans have peptic ulcers, according to PATTERNS OF DISEASE, a monthly publication of Parke, Davis & Company. Within little more than 20 years, the estimated prevalence has risen almost 600 per cent, the report says, and though part of that rise has been attributed to improved diagnostic accuracy, ulcers of the stomach and duodenum ranked no lower than sixteenth as a cause of death for the year 1959.

Duodenal ulcer occurs three to four times more often among men than among women, and gastric ulcer about twice as often. This disparity decreases in older groups, especially beyond age 45, but in no age group is the incidence among men less than twice as great as among women. Peptic ulcer has been diagnosed with increasing frequency in females during the past 10 years, and in the experience of one gastroenterologist, according to PATTERNS, the incidence among children presenting complaints of abdominal pain has increased from 6 per cent before 1955 to almost 20 per cent in the period 1955-1960.

Another popular belief, that peptic ulcers are more common among city dwellers than among rural people, is contradicted by this study. In farm areas the incidence is 16.7 cases per 1,000 people; in rural non-farm areas, 14.1 cases per 1,000 people; and in urban areas, 14 cases per 1,000 people. Furthermore, there seem to be some sections of the country where the disease is especially prevalent. In urban areas, peptic ulcer is more frequent in the West than in the Northeast, North Central or South, but in rural areas the incidence seems greatest in the South.

In a survey of physician opinion conducted by the staff of PATTERNS, 45 per cent of the doctors interviewed blamed personality type for peptic ulcer, 27 per cent cited environmental pressures, 24 per cent constitutional predisposition, and 6 per cent poor dietary habits. The percentages totaled more than 100 because many physicians blamed more than one factor. Seventy-six per cent of the doctors interviewed discerned a seasonal pattern in illnesses from peptic ulcer. Spring was most frequently cited as the season in which flare-ups occur. Fall was named by the next largest number, and summer and winter were each cited by only 6 per cent of the physicians.

Coming Meetings

(Continued from page 84)

Mar. 19-23	**Advances in Surgery.** Cook County Graduate School of Medicine, Chicago
Mar. 19-23	**Basic Electrocardiography.** Cook County Graduate School of Medicine, Chicago
Mar. 19-30	**Obstetrics and Gynecology.** Harvard Medical School, Boston
Mar. 19-21	**Dallas Southern Clinical Society Spring Clinical Conference.** Statler Hotel, Dallas
Mar. 20-22	**Pre- and Postoperative Care.** Medical College of Georgia, Augusta
Mar. 20-22	**National Health Forum.** Pick-Carter Hotel, Cleveland
Mar. 20-23	**American Association of Anatomists.** Minneapolis
Mar. 21-24	**Neurosurgical Society of America.** Buena Vista Hotel, Biloxi, Mississippi
Mar. 21-24	**Thirty-ninth Annual Meeting of the American Orthopsychiatric Association.** Biltmore Hotel, Los Angeles
Mar. 22-23	**The Heart: Cardiac Arrhythmias Symposium.** University of Kansas School of Medicine, Kansas City, Kansas
Mar. 22-23	**International College of Applied Nutrition Annual Convention.** Huntington-Sheraton Hotel, Pasadena, California
Mar. 24	**Conference on Emergencies.** Presbyterian Medical Center, San Francisco
Mar. 24-26	**Skin and Internal Disorders.** Stanford University School of Medicine, Palo Alto
Mar. 26-28	**Clinical Reviews.** Mayo Clinic and Mayo Foundation, Rochester, Minnesota
Mar. 26-30	**Vaginal Approach in Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago
Mar. 26-30	**Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago
Mar. 26-30	**Treatment of Varicose Veins.** Cook County Graduate School of Medicine, Chicago
Mar. 26-Apr. 6	**Basic Internal Medicine.** Cook County Graduate School of Medicine, Chicago
Mar. 28-31	**American Dermatological Association, Inc.** (Members Only) San Marcos Hotel, Chandler, Arizona
Mar. 29-31	**Cardiac Drugs.** University of California, San Francisco
Mar. 30-Apr. 1	**Hypothermia.** University of California, Los Angeles
Mar. 30-Apr. 1	**American Society for the Study of Sterility.** Drake Hotel, Chicago
Mar. 31-Apr. 1	**American Psychosomatic Society.** Sheraton Hotel, Rochester, New York

Iowa Physicians Are Asked to Cooperate in the

Cornell University Automotive-Crash Injury Research Program

During a two-year period beginning on February 1, 1962, physicians throughout Iowa are being asked to participate in the automobile-crash injury studies sponsored by Cornell University (New York).* Since its inception, the purpose of this research has been to collect reliable data on the specific causes of injury to occupants of cars involved in smash-ups, rather than on the causes of the accidents themselves. Information from the states that cooperated several years ago served as a basis for the designing of passenger-protection devices such as the seat belts, spring-proof door latches, energy-absorbing steering wheels, padding, etc., with which automobile manufacturers began equipping their cars in about 1955. Now, one of the purposes of the program is to collect data for use in evaluating the effectiveness of those recently adopted safety mechanisms, as well as in showing the need for additional protections. Thus, only the injuries to passengers in post-1957 model cars are to be reported upon in the Iowa portion of the studies.

Trauma produced in highway accidents is a "disease" endemic to the Western Hemisphere during the Twentieth Century, just as the bubonic plague, typhoid fever and malaria were seemingly ineradicable during previous eras. The Cornell studies employ the epidemiologic approach, and Iowa is the twenty-second state in which the state medical society, the state department of health and the state police have agreed to cooperate. The other states are Indiana, North Carolina, Virginia, Maryland, Georgia, Connecticut, New York, Vermont, Pennsylvania, Minnesota, Texas, Colorado, Michigan, Arizona, California, Orgeon, Ohio, New Mexico, Illinois, South Carolina and Wisconsin. Cornell University Automotive Crash Injury Research Studies are sponsored by the USPHS and by the Automobile Manufacturers Association.

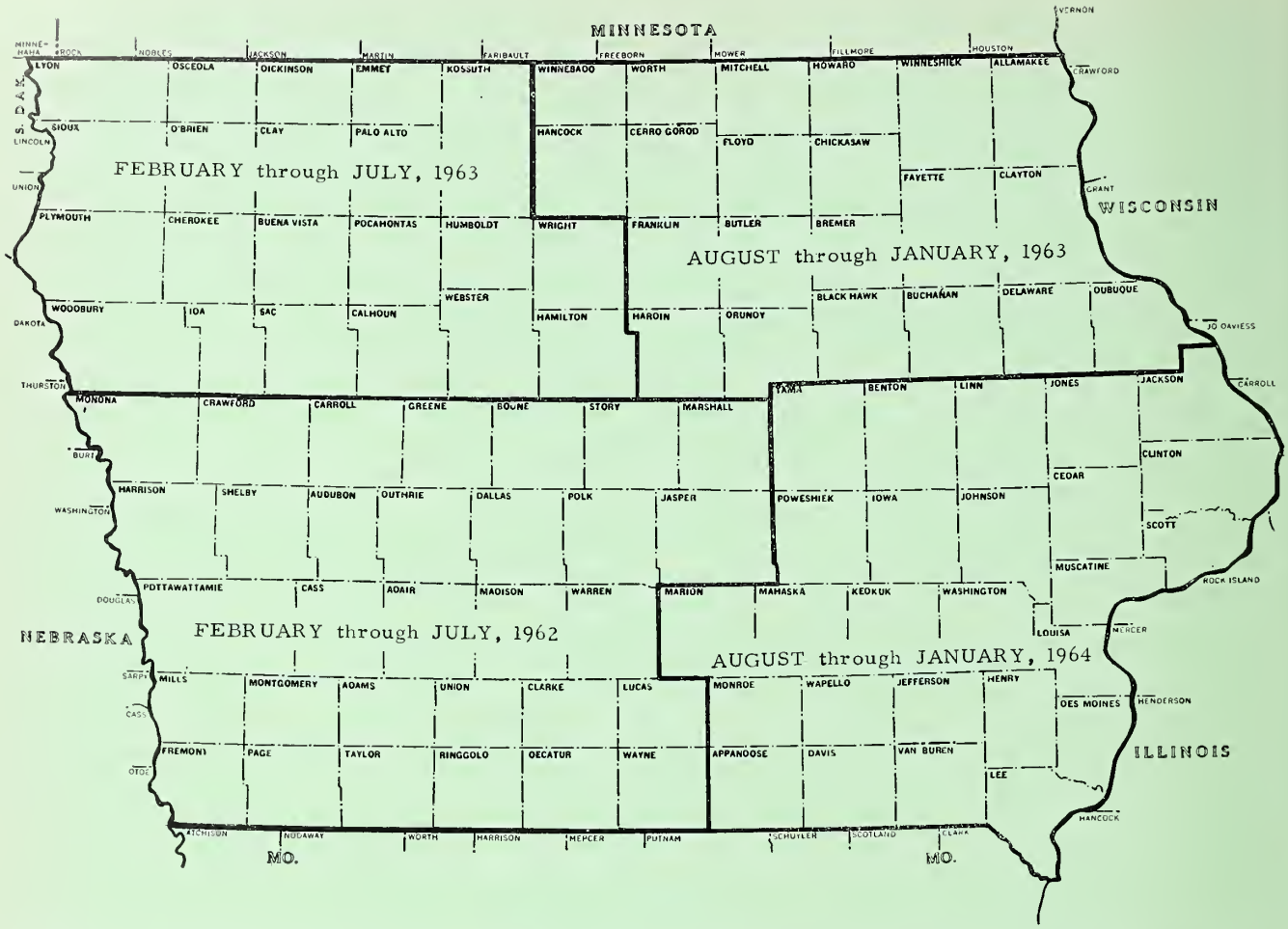
SEVERAL PROTECTIVE DEVICES HAVE HELPED

Thus far, the Cornell studies have shown that these safety devices are effective in preventing or in reducing the severity of injuries. In the injury studies that have been done on crashes involving the newer cars, it has been found that the incidence of door-openings during accidents has been reduced by one third. As a result, the frequency of passenger ejection is down about 40 per cent, and the serious or fatal injuries have declined about 12 per cent. Yet, door latches haven't been made crash-proof, and if they could be so designed, the Cornell authorities are convinced, 5,500 additional lives could be saved each year.

When in use at the times of accidents, it is reliably estimated that seat belts account for a 35 per cent reduction in the risk of major or fatal injury.

To date, Cornell University has collected in-

* B. J. Campbell, Ph.D., reported on the Cornell University Automotive Crash Injury Research Program at the 1961 annual meeting of the Iowa Medical Society, and his presentation was published in the December, 1961, issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY.



Periods during which all injuries sustained in accidents involving post-1957 cars and investigated by the State Highway Patrol are to be reported for the Cornell Automotive Crash Injury Research Project.

sufficient data for a reliable evaluation of the efficiency of automobile padding and of shock-absorbent steering assemblies, but the evidence is at least beginning to show that the latter are lowering the incidence of severe chest injuries to drivers.

IOWA DOCTORS AREN'T TO SHARE IN THE STUDY SIMULTANEOUSLY

The Iowa study is scheduled to last at least two years, but doctors in each of the four quarters of the state will be asked to make reports only during the six-months period indicated for their section on the accompanying map.

When one or more passengers in a post-1957 car have been injured, the state highway patrolman assigned to investigate the accident will have two extra tasks to perform: (1) to answer certain questions and take photographs for the Cornell investigators; and (2) to deliver the required number of copies of the physician's report form to the hospital emergency room or doctor's office where the injured were taken (or to the county medical examiner for passengers killed in the crash).

The hospital employees will give the forms to the attending physician, and when they have been filled in, they will get them from him and forward them to the State Department of Health.

The physician will find that the form which he is asked to complete is a brief one, and since it is anticipated that reports will be sought on no more than one or two injured individuals per day in the entire quarter of the state where the study is in progress, the likelihood is small that any particular doctor will need to report on more than two or three occasions.

The Division of Home, Farm and School Safety of the State Department of Health will receive the reports from the State Highway Patrol and from the doctors (in most instances through the hospitals where the patients have been cared for), and will forward them to Cornell University.

CONCLUSION

Physicians are urgently requested to participate in this effort, for it is aimed at solving one of the nation's foremost epidemiologic problems. Unless the injuries of each person hurt or killed in a passenger-car accident within the sampling area are carefully recorded, the effectiveness of the study and the value of the data that it produces will be seriously reduced.

Twenty-Two Questions and Answers About the AAGP

Here is presented, in a series of questions and answers, a brief description of the American Academy of General Practice—its purposes, the ways it serves general practitioners, and the reasons why some 27,000 family physicians feel a moral obligation to maintain membership in it.

We invite you to examine the answers to these questions carefully, for we believe that they will strengthen your faith in general practice and demonstrate to you the desirability of joining in this movement for the betterment of general practice, the medical profession generally, and the public welfare.

1. *What is a general practitioner?* A general practitioner is a legally qualified doctor of medicine who does not limit his practice to a particular field of medicine or surgery. In his general capacity as a family physician and medical advisor, he may, however, devote particular attention to one or more special fields, recognizing at the same time the need for consulting with qualified specialists when the medical situation exceeds his own training and experience.

2. *What is the American Academy of General Practice?* It is a national association of doctors of medicine who are engaged in general practice. The Academy has active constituent state chapters in all states, the District of Columbia and Puerto Rico.

3. *Why was the Academy formed?* It resulted from a spontaneous movement among groups of general practitioners in a number of states who were convinced that progress and advancement in the general practice of medicine and surgery were basic not only to the welfare of the people of America but also to the medical profession. They recognized that only a group of general practitioners, banded together in their own organization, could accomplish the desired elevation of standards and quality in general practice, just as specialty groups have undertaken to achieve the same objectives in their respective fields.

4. *What are the objectives of the Academy?* The basic philosophy of the Academy is that improved standards and quality in general practice will greatly benefit the public and the medical profession. The objectives and purposes of the Academy, as set forth in its Constitution, are as follows:

A. To promote and maintain high standards of the general practice of medicine and surgery. B. To encourage and assist young men and women in preparing, qualifying and establishing themselves in general practice. C. To preserve the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience. D. To assist in providing postgraduate study courses for general practitioners. E. To advance medical science and private and public health, and to preserve the right of free choice of physician to the patient.

5. *Does the Academy's program for improving general practice extend beyond its own membership?* Yes. The Academy recognizes its responsibility for helping all general practitioners who wish to increase the quality and standards of their work. Obviously, this is best accomplished through membership in the Academy, but the organization's accomplishments in the wider integration of general practitioners into hospital staffs, for example, are not limited to Academy members.

Also, through cooperation with the Association of American Medical Colleges and the AMA, the Academy is instrumental in improving technics of teaching the general practice of medicine in medical schools. Its sponsorship of preceptor programs is intended, likewise, for the betterment of general practice everywhere.

6. *Does the Academy advocate that all general practitioners be permitted to perform surgery in hospitals?* No. The Academy does advocate that every general practitioner should have equal opportunity with specialists to qualify for hospital privileges, but it believes that such privileges should be extended only on the basis of competency. The specific recommendations are contained in the Academy's MANUAL ON GENERAL PRACTICE DEPARTMENTS IN HOSPITALS, which also outlines principles and procedures for integrating general practitioners into medical staffs. Copies can be obtained from the headquarters office.

The Academy believes that integration of competent general practitioners into hospital medical staffs is in the best interests of both the public and the profession.

Members have a responsibility to provide opportunities for younger physicians to advance in skill and experience in their community hospitals.

7. *Is the Academy affiliated with the Section on General Practice of the AMA?* Not officially. It does, however, cooperate with that instrumentality of the AMA. Since 1947, when the Academy was founded, all chairmen and secretaries of the AMA Section on General Practice have been Academy members.

8. *Does the Academy duplicate the activities of any other medical organization?* No, not of the AMA, of the speciality boards, or of any other national medical group. Although it willingly cooperates with other agencies whenever appropriate and desirable, the AAGP has a program that is aimed solely and specifically at meeting the needs of general practitioners.

9. *How many members does the AAGP have?* The membership changes almost daily, but as of this writing the number approximates 27,000, making the Academy the second largest medical association in the United States. Its rapid growth is unprecedented in the history of medical organizations.

10. *How many members does the Academy expect eventually to have?* The Academy has no aspirations to become a "second AMA," but on the other hand, it has set no numerical ceiling on its membership. Of approximately 82,000 general practitioners now active in the United States, probably less than half could meet and would comply with the AAGP's membership requirements. The Academy conservatively estimates its ultimate membership at somewhere in excess of 35,000. With such a membership, it will continue to rank second only to the AMA in shaping the profession's policies and maintaining its prestige.

An analysis of the numbers of practicing physicians in recent years clearly shows that more than half of the active practicing physicians are general practitioners. This finding is an indication that the demand for general practitioners continues high, regardless of the expansion in specialty practice.

11. *What is the relationship between the Academy and the AMA?* The Academy recognizes the AMA as the parent organization of the medical profession in America. The Academy's aim is to work in cooperation and close harmony with the AMA. Similarly, the AMA cooperates with the Academy through joint representation on numerous committees and councils.

12. *Does Academy membership confer advantages in the buying of private insurance?* Yes, the Academy has five group health and accident policies available to its members at substantially reduced premiums. In addition, a low-cost, high-benefit group life insurance plan is available to qualified members in most states.

The most recent addition to the AAGP insurance program is a retirement plan offering a flexible opportunity to invest in a growth-type mutual fund, a group annuity, or a combination of the two. Featuring low sales and administrative charges, this new program is now available to members in many states. Annual savings in Academy-sponsored plans exceed the membership fees many times over.

13. *How is the Academy governed?* The Congress of Delegates, made up of two members from each constituent chapter, is the policy-making body of the Academy. It meets annually. The Board of Directors operates the Academy between meetings of the Congress of Delegates, under general directives laid down by the Congress of Delegates. Three new Board members are elected by the Congress each year. The Board is aided in its work by numerous commissions and standing committees.

14. *What are the requirements for AAGP membership?* To be eligible for ACTIVE membership, a candidate must be a graduate of an approved medical school and have had a minimum of one year's rotating internship in an approved hospital. In addition, he must have completed one of the following: (1) two years' approved residency training; (2) one year's residency and two years of practice; or (3) three years of active practice.

He must be a member of his state medical society, and must be licensed to practice medicine and surgery in the state of his residence. He must be of high moral and ethical character, and he must have shown interest in continuing his medical advancement by engaging in postgraduate education. (By action of the Congress of Delegates, physicians graduating after January 1, 1966, will be required to have completed two years of formal graduate training to be eligible for active membership.)

ASSOCIATE membership is available to graduates of approved medical schools who are not eligible for active membership.

15. *How does the Annual Assembly benefit members?* First, it is the most important medical meeting of the year—a concentrated postgraduate course in the subjects a family physician can use in his daily practice. It integrates scientific exhibits with the lecture program to give him both visual and oral instruction. Registration fees for members are paid by the Academy.

16. *What value does the magazine* GP *have for Academy members?* Already accepted as one of the "top three" in medical journalism, GP concentrates on the problems of the general physician —and makes reading medical literature a pleasure instead of a grim obligation. Access to this new treatment of medical material is an "extra" for Academy members, since a subscription to GP is included in each member's dues. To non-members, subscriptions are $10 per year.

17. *How do I apply for membership?* One fills

out a nomination form and submits it either to the state chapter's office or to the AAGP headquarters office, together with a check covering the admission fee and the state and national dues. Approved candidates, when they have been elected by their respective state chapters, are certified to the AAGP for membership.

18. *What are the various types of membership?* ACTIVE members, as described above, make up the bulk of Academy membership. Any member can be given INACTIVE status by the Board because of age, illness, accident or temporary service with the armed forces. ASSOCIATE memberships are available to those who are in approved internships or residencies, and to physicians in active practice who are unable to fulfill the requirements of the By-Laws for active membership. SUSTAINING memberships are provided for those members who have ceased active general practice but desire to continue in the Academy.

19. *What are the responsibilities of a member?* Joining the Academy is evidence of a doctor's faith in general practice—evidence that he believes in the Academy's objectives. The primary obligation of active membership, of course, is the fulfillment of the postgraduate study requirements. Interest in the state chapter's program is important, and each member is urged to be equally active in the county or district chapter in his area, or to assist in the development of such a chapter. Finally, the Academy hopes each doctor will contribute to its continuing growth by encouraging his colleagues to join, if he feels that they merit such membership.

20. *How much are dues?* American Academy dues are $25 per year, payable each January 1. There is an admission fee of $10, and thus the total for the first year is $35. (For new members, the national dues are prorated on July 1.) State dues and initation fees are extra, and they vary. The exact amounts are shown on the nomination form.

21. *What must a member do to retain his membership?* All active memberships terminate at the end of three years. To be eligible for reelection, a member must have completed 150 hours of postgraduate training acceptable to the Commission on Education. This requirement is based on the principle that continuing study is the keystone of good medical practice.

22. *Does the Academy have political activities?* No. The Academy lends support to other organizations which oppose movements or legislative proposals inimical to medicine and public health, but such actions are not among its principal objectives. It employs no lobbyists in Washington. Academy founders rightly recognized that the family physician's principal obligation is self-improvement as a medical practitioner, and the Academy's efforts are directed principally at that end.

Northwest Postgraduate Conference

Sheraton-Martin Hotel, Sioux City
Thursday, March 15, 1962

All physicians and their wives are cordially invited and urged to attend the Northwest Postgraduate Conference, at the Sheraton-Martin Hotel, Sioux City, on Thursday, March 15. The meeting will be sponsored by the Iowa Chapter of AAGP, in cooperation with Lederle Laboratories. There will be no registration fee. All expenses of the meeting, including those of the speakers, the luncheon and the reception will be defrayed by a grant from Lederle.

An outstanding program has been arranged. Following are the speakers and their topics.

"Alcoholism—Acute and Chronic"—Beverley T. Mead, M.D., University of Kentucky

"Obstetrical Emergencies"—M. E. Davis, M.D., Chicago

"Toxic Eruptions"—Harry N. Robinson, Jr., M.D., University of Maryland

"Rhinitis, Sinusitis and URI's"—Noah D. Fabricant, M.D., Chicago

"Behavior Problems in Children"—Edward M. Litin, Mayo Clinic (the luncheon speaker)

Dr. V. L. Schlaser, the Iowa Chapter president, will moderate the morning program; Dr. Donald H. Kast, a member of the AAGP Board of Directors, will be the luncheon chairman; and Dr. Eugene Smith, the president-elect of the Iowa Chapter, will moderate the afternoon program.

Five hours of Category I credit will be allowed Academy members for attendance at this meeting.

Excess Mortality Associated With Epidemic Influenza*

One of the classic epidemiologic descriptions frequently applied to influenza is embodied in the phrase "high morbidity, low mortality." Such a description however tends to lose sight of the fact that morbidity in epidemic influenza may be so high that even the relatively low associated mortality may itself reach grave proportions.

Two epidemics of Asian strain influenza have occurred in the United States since the identification of this antigenic variant in May 1957. The first occurred in two distinct waves from September through December, 1957, and from January through March, 1958. A total of almost 40,000 excess deaths were recorded during the first wave and of 20,000 during the second wave. During the first three months of 1960, a second major epidemic occurred, resulting in approximately 27,000 excess deaths. A total of 86,000 deaths in excess of the

* Eickhoff, T. C., Sherman, I. L., and Serfling, R. E.: Observations on excess mortality associated with epidemic influenza. J.A.M.A., **176**:776-782, (June 3) 1961.

expected number thus occurred in the United States as a result of Asian influenza epidemics in the three-year period.

It is important to determine in how many of the 86,000 excess deaths influenza was merely a terminal event in an already severely debilitated patient, and in how many influenza and its accompanying pneumonia may have killed a person in active, productive life, albeit in an older age group, or with definite but compensated chronic disease.

The best measure of the total impact of an epidemic is provided by the total excess mortality. The accompanying table shows the estimated excess, and that the bulk of it was in deaths due to pneumonia-influenza and cardiovascular-renal causes.

When excess mortality data are analyzed by age, it is apparent that the heaviest toll is paid by the population over 65 years. Although during the first epidemic period only slightly over one half of the excess deaths occurred in persons 65 years of age and older, this proportion increased in succeeding epidemics. In the 1960 epidemic, 80 per cent of the excess deaths occurred among individuals in this age group.

It need not seem paradoxical that an epidemic of influenza should cause a distinct wave of excess deaths said to be due to cardiovascular-renal disease, or to some condition other than influenza and pneumonia. These "epidemics" of chronic disease are because deaths in the United States as well as in most other countries are tabulated by "primary" cause, that is the cause that initiated the train of circumstances which eventually resulted in death.

EXCESS MORTALITY IN SELECTED YEARS (U. S.)

Cause and Period	Expected	Observed	Excess
October-December, 1957			
Total deaths	408,320	447,620	39,300
Pneumonia-influenza	12,440	24,540	12,100
Cardiovascular-renal	221,360	240,060	18,700
All other	174,520	183,020	8,500
January-March, 1958			
Total deaths	421,020	441,020	20,000
Pneumonia-influenza	16,740	22,740	6,000
Cardiovascular-renal	235,180	248,180	13,000
All other	169,100	170,100	1,000
January-March, 1960			
Total deaths	439,100	465,800	26,700
Pneumonia-influenza	18,270	28,870	10,600
Cardiovascular-renal	246,350	258,550	12,200
All other	174,480	178,380	3,900

LIVES CUT SHORT

Analysis of the excess mortality data has suggested that most victims of an influenza epidemic are those who might have lived considerably longer had influenza not claimed them, rather than severely debilitated patients in whom influenza is simply the terminal event.

Excess influenza-associated deaths due to asthma, diseases of the respiratory system other than influenza and pneumonia, and pulmonary tuberculosis probably occur primarily in patients whose pulmonary function is significantly compromised. The lives of diabetics are jeopardized by influenza not only by their increased risk of bacterial superinfection and increased incidence of cardiovascular-renal disease, but also by the increased risk of acidosis and coma during an acute infection.

An increased risk of influenza death in association with certain conditions is better demonstrated by clinical studies than by analysis of reported mortality data. The association of rheumatic heart disease and influenza-associated deaths, particularly rheumatic mitral stenosis and fatal influenza-virus pneumonia, for example, is well documented in the literature.

A relationship between influenza-associated deaths and pregnancy is a common clinical impression. Several studies carried out during the 1957 pandemic have indicated that pregnant women are definitely at greater risk of death from influenza than non-pregnant women of the same age group.

VACCINATION FOR HIGH-RISK GROUPS

There is a significant body of evidence that the lethal potential of epidemic influenza is still present. Rather than recurring in a mild form, as might have been anticipated as the over-all immunity of the population increased, the most recent outbreak in 1960 resulted in excess mortality which exceeded that of the second wave of the 1957-1958 epidemic and approached that of the first wave.

This analysis serves to underscore the fact that certain individuals are at increased risk of death from influenza. Three broad groups can be identified—persons over 65, persons with certain associated chronic diseases, and pregnant women. The chronic illnesses of significance include cardiovascular-renal disease, particularly rheumatic heart disease; chronic pulmonary disease, e.g., bronchial asthma and pulmonary tuberculosis; and metabolic diseases such as diabetes mellitus.

It would seem entirely reasonable to believe that the prevention of influenza in these high-risk groups would result in a corresponding reduction of excess influenza-associated mortality. Annual immunization of such high-risk groups against influenza might well be highly effective in reducing the disquieting toll of excess deaths periodically exacted by epidemic influenza.

THE DOCTOR'S BUSINESS

How Much Fidelity Bond?

HOWARD D. BAKER
Waterloo

Even among the most trusted employees, and under the most ideal system of internal control, employee dishonesty can and does occur. If his system is any less than ideal, in fact, an employer may be encouraging such dishonesty. It is also a time-worn fact that embezzlements occur in places and at times where they are least expected. The Fidelity and Deposit Insurance Company estimates losses from employee dishonesty in this country at $500,000,000 annually. Thefts range from insignificant amounts up to thousands of dollars, occasionally amounting to sums large enough to bring complete financial ruin to an individual employer or firm.

Besides providing decent working conditions, reasonable hours, adequate wages and opportunities for advancement, employers have a moral obligation to safeguard their employees' integrity by doing everything possible to protect them from the temptation to embezzle or steal. No system of accounting or internal control has yet been devised that will absolutely guarantee against dishonesty, yet much can be done to keep an inherently honest employee from yielding to temptation in a moment of weakness, or under the stress of financial worry.

Following are some important features of an adequate internal control system. If at least some of these points are not operative in your office, you should discuss them with your management consultant or accountant:

1. Is the mail opened by a trusted employee, *other than* your bookkeeper or cashier?

2. Is a list of payments received by mail, classified as to checks, cash or money orders, prepared by that person and checked against the daybook regularly?

3. Are receipts issued for all moneys received, and are all unused receipts accounted for as they are used or spoiled? Receipts should be serially numbered.

4. Is cash reconciled or balanced daily, and is it subject to check by someone other than the person responsible for the reconciliation?

5. Are deposits made daily of each day's cash receipts, intact, and is responsibility fixed on one person for making these deposits?

6. Are all overages and shortages reported promptly?

7. Cash withdrawals of any type are potentially dangerous and should not be made. If such withdrawals are made, a voucher showing the amount and the date should be signed by the person receiving the funds.

8. Is cash physically safeguarded to prevent a dishonest employee from blaming "outside theft" in case of shortages?

9. Are the daybook, accounts receivable and patient case histories spot-checked periodically for discrepancies and irregularities?

10. Are all employees handling cash receipts covered by a fidelity bond or dishonesty insurance?

These and other safeguards which can be installed will guarantee *maximum* protection against employee dishonesty, but, as previously stated, they cannot be relied upon as *absolute* protection.

Much has been said about the fidelity bond. The next problem is "How large should it be?" After considering the matter thoroughly, we feel that the following simple formula for use in determining risk is valid, and can be used for dental and medical offices: Risk = 10 per cent of annual gross receipts plus 10 per cent of current assets (cash on hand, bank accounts, securities, and drug and supply inventories).

The following amounts of insurance should be carried:

For risks up to $25,000 ..... Equal to exposure
For risks $25,000 to $125,000 .. $25,000 to $50,000
For risks $125,000 to $250,000 .. $50,000 to $75,000
For risks $250,000 to $500,000 .. $75,000 to $100,000

Remember, no one is immune to employee dishonesty. Your only assurance of maximum protection is an adequate system of internal controls, plus the bonding of each employee who has access to moneys or valuable properties in your office.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

STATE DEPARTMENT OF HEALTH

Edward G. Zimmer
COMMISSIONER

Percentage Distribution of Syphilis Cases by Age Groups, Iowa—1940, 1950 and 1960

Age Group	Sex	1940 Cases	1940 Per Cent	1950 Cases	1950 Per Cent	1960 Cases	1960 Per Cent
Infants 1 Year	M	9	.65	10	.79	1	.27
	F	9		5		2	
1-4 Years	M	8	.62	1	.10	0	
	F	9		1		0	
5-9 Years	M	14	.98	1	.10	0	
	F	13		1		0	
10-14 Years	M	12	1.16	9	1.06	1	.18
	F	20		11		1	
15-19 Years	M	33	5.44	25	4.29	3	.99
	F	116		56		8	
20-24 Years	M	101	10.96	79	9.12	18	3.34
	F	199		93		19	
25-29 Years	M	149	14.25	78	8.91	18	3.79
	F	241		90		24	
30-39 Years	M	367	24.30	147	18.03	29	8.49
	F	298		193		65	
40-49 Years	M	339	19.95	213	21.53	63	15.0
	F	207		193		103	
50-59 Years	M	245	12.82	188	16.71	125	22.60
	F	106		127		125	
60-69 Years	M	108	5.59	139	10.61	140	20.88
	F	45		61		91	
70-79 Years	M	15	.76	29	2.38	76	12.47
	F	6		16		62	
80 Plus	M	2	.07	2	.10	17	2.53
	F	0		0		11	
Age Not Stated	M	41	2.41	62	6.20	64	9.40
	F	24		55		40	
Sub-Totals	M	1443	52.74	983	52.14	555	50.18
	F	1293	47.25	902	47.85	551	49.81
Grand Total		2736		1885		1106	

The U. S. Public Health Service recently observed that in the fiscal year that ended on June 30, 1961, a total of 19,000 cases of infectious syphilis had been reported in the United States. That is the greatest number for any year since 1950. The increase in early syphilis noted in most states and major cities has not yet occurred in Iowa. Of the 1,106 Iowa cases reported in 1960, only 51 were early syphilis (primary, secondary or early latent).

In 1960, of the 1,002 patients whose ages were reported, 64.6 per cent were over 50 years of age, as compared with 19.7 per cent in the same age groups in 1940. This definitely indicates that in Iowa we are now dealing primarily with people who contracted syphilis years ago. These individuals usually have low Kolmer and VDRL titres, and represent a definite diagnostic and treatment problem for the physician. That they actually do have, or have had, syphilis is borne

out by reactive treponemal tests (RPCF and TPI), which in 1960 were run on all sera giving positive standard, non-treponemal test reactions.

Iowa Influenza Surveillance

The Iowa State Department of Health, along with all other state departments of health, since last September, has been on the alert for outbreaks of influenza. Outbreaks of either A or B Type influenza had at that time been predicted by the U. S. Public Health Service for the winter of 1961-1962. Although it seemed more probable that outbreaks, if they did occur, would be of the Asian A Type, to date that strain has not been isolated from an outbreak anywhere within the United States. The B strain, however, has been isolated in eight different states—California, Oregon, Washington, Arizona, Colorado, Missouri, Illinois and Florida. Two of those eight are neighboring states —Missouri and Illinois. The disease appeared in and west of St. Louis, and in southern Illinois during the early part of December. Since then, the Iowa Department of Health has increased its alert.

No Iowa outbreaks were heard of until the morning of January 9, when the Associated Press carried the story of an outbreak at the Hazleton School, in Buchanan County. Since influenza was suspected, it was necessary to check and confirm both the clinical and the laboratory diagnosis, if possible. The following report is given to show how the State Department of Health, together with auxiliary forces, can work as a part of a local and national surveillance program.

By noon on that same day, January 9, two workers were ready to start to Hazleton from the State Department of Health. One was a public health nurse especially trained in communicable disease control, and the other was a physician on loan from the U.S.P.H.S. to the State of Iowa and Polk County. Those two individuals, within 36 hours after leaving Des Moines, presented the following report to the State Department of Health:

"Since there is no physician resident in Hazleton, we first called the city health officer for the town of Oelwein, four miles to the north in Fayette County. We also conferred with the county health officer of Buchanan County, in which Hazleton is located. Those two physicians thus were alerted to the fact that the State Department of Health had a work-team in the area.

"At Hazleton, the school superintendent was interviewed, and he stated that on Monday, January 8, the illness really first struck, with 136 of the 350 pupils enrolled in the school ill with 'flu.' On the following morning, 171 pupils were absent. The clinical illness as described by the superintendent, by the patients interviewed and by physicians in Oelwein who had seen a small number of patients was as follows: Fever from 101° to 103° or even 105°; chills or chilliness, sweats, non-productive cough, sore throat, runny nose, headaches, general aches and pains, aching in the back of the eyes and in the back of the head and neck, and conjunctivitis. A few patients complained of dizziness and nausea. There was no general story of abdominal cramps or diarrhea. Three patients were hospitalized at Oelwein. Duration of illness was three to four days.

"A telephone survey was done at Hazleton, and history forms were filled out for a total of 89 people. This was a random survey in which every third name in the Hazleton section of the telephone directory was chosen. Hazleton has a population of 665. The school draws students from a township area. All grades are included in the school, from kindergarten through high school. Pupils from the second grade upward were the ones affected with this illness. There were also some adults ill. The lower grades (kindergarten and first) had much lower rates of infection. They are housed in a building separate from the other grades. They eat lunch earlier than the other children. Therefore, there is little contact between these two grades and other grades while at the school. However, they ride to and from school on buses with the other children. A breakdown was taken of all absences and illnesses by grades and by school staff from the superintendent's daily record. The telephone survey gave information on adults and pre-school children."

Since this was largely a respiratory-tract infection, as judged by the symptoms reported, and since fecal specimens would have been difficult to collect, only throat washings were collected. These were taken from 20 patients with onsets of illness within 24 hours previous to the time when specimens were taken. Because the State Department of Health has no virus laboratory, those specimens are being sent to the Communicable Disease Center Field Station in Kansas City for examination.

Before leaving the area, the two investigators met with the two county medical societies concerned, and outlined to them the scope of the investigation and the procedures for the laboratory testing. The meeting with the Fayette County Medical Society took place in Oelwein on January 9, and the meeting with the Buchanan County Medical Society was at Independence on January 10. Doctors from those two counties reported that there were a few cases of a similar illness either to the north or to the south of Hazleton. A reported outbreak in a school at Independence was not confirmed.

On January 9, the city health officer at Mapleton, in Monona County, about 200 miles west of Hazleton, phoned to describe an outbreak almost identical with the Hazleton one. Of 850 youngsters enrolled at a school there, about 200 were ill. He stated that the outbreak extended into the area surrounding Mapleton. During the week of Jan-

uary 15, outbreaks have appeared in rural Polk County. These are being investigated by the Des Moines-Polk County Health Department at this writing.

The type of clinical illness shown in the outbreaks in Buchanan and Monona Counties is almost identical with that described as influenza B outbreaks in other states. The State Department of Health knows, also, that Type B influenza differs from Type A in that the outbreaks do not cover so large a territory and are inclined to be isolated and sporadic.

Field Trials of Measles Vaccine

Field trials for two types of measles vaccine got underway this week in some 5,000 children beginning in five widely separate parts of the country, Surgeon General Luther L. Terry of the Public Health Service announced on December 12.

The studies are being conducted by local health departments, in cooperation with the Service's Communicable Disease Center, in DeKalb County, Georgia; Cincinnati, Ohio; Seattle, Washington; and in Rochester and Buffalo, New York.

"This is the first large scale trial of killed virus measles vaccine and the first time it has been used in combination with live virus vaccine in a field trial," Dr. Terry said. "The purpose is to find out how effective these methods will be in protecting children against measles."

Previous trials of measles vaccine, he explained, have tested the use of live vaccine alone or in combination with gamma globulin. The live vaccine alone has frequently produced fever and rash. These side effects are reduced when gamma globulin is used, but supplies of gamma globulin may not be adequate for mass vaccination programs since it is derived from human blood.

Dr. Terry pointed out that in the United States measles causes more deaths than any other common childhood disease. Conservative estimates indicate that approximately 500 children die each year as a result of infection with the measles virus. Many of these deaths are due to measles encephalitis which may occur as often as 1 in 400 cases.

The children in the current study will be divided into three groups. The first group will receive three shots of killed virus vaccine. The second will be given two shots of killed vaccine and one shot of live. The third will receive dummy injections (placebos).

YOU'LL HEAR ABOUT

Casualties in nuclear-weapon warfare

at the

ANNUAL MEETING OF THE IOWA MEDICAL SOCIETY

May 13-16

Veterans Memorial Auditorium, Des Moines

Morbidity Report for Month of December, 1961

Disease	1961 Dec.	1961 Nov.	1960 Dec.	Most Cases Reported From These Counties
Diphtheria	0	0	1	
Scarlet fever	195	142	165	Jefferson, Johnson, Polk
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	217	191	108	Polk, Poweshiek, Story
Whooping cough	16	8	18	Scott
Brucellosis	12	11	11	Dubuque, Polk, Scott
Chickenpox	359	153	895	Buena Vista, Dubuque, Polk, Pottawattamie
Meningococcic meningitis	4	1	1	Black Hawk, Polk
Mumps	356	91	350	Dickinson, Polk
Poliomyelitis	2	1	0	Clinton, Story
Infectious hepatitis	148	96	64	Black Hawk, Boone, Dallas, Henry, Mills, Polk, Wapello
Rabies in animals	18	22	15	Story
Malaria	0	0	1	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	22	33	43	For the state
Syphilis	100	59	93	For the state
Gonorrhea	134	95	145	For the state
Histoplasmosis	3	5	0	Dallas, Polk
Food intoxication	325	0	30	Linn (Delayed)
Meningitis (type unspecified)	0	11	1	
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	0	1	
Salmonellosis	2	2	1	Black Hawk, Linn
Tetanus	0	1	0	
Chancroid	1	0	0	Polk
Encephalitis (type unspecified)	1	0	0	Polk
H. influenzal meningitis	0	0	0	
Amebiasis	0	0	0	
Shigellosis	1	0	2	Johnson
Influenza	8	4	77	Dickinson

Woman's Auxiliary News

Our President Says—

"The pre-eminence of a free government will be exemplified by all the attributes which can win the affection of its citizens and command the respect of the world."

—George Washington

"What constitutes the bulwark of our liberty and independence? It is not our frowning battlements, our bristling seacoast, our Army and our Navy. These are not our reliance against tyranny. All of those may be turned against us without making us weaker for the struggle. Our reliance is in the love of liberty which God has planted in us. Our defense is in the spirit which prizes liberty, as the heritage of all men and all lands everywhere."

—Abraham Lincoln

This month we celebrate the birthdays of these two great Americans with gratitude and humility. Their basic ideals and their services to our country and to humanity have increased in importance from generation to generation, and will stand for all time as our guideposts. May we, in 1962, hold steadfast to their ideals in maintaining justice, liberty, and peace.

Each of us, as an Auxiliary member, has an individual responsibility to perform. Have you participated in the program of your county organization? Have you paid your dues? Have you interested an eligible doctor's wife in becoming a member of the Auxiliary? Have you attended the scheduled meetings? Have you sent information on your county's activities to the WOMAN'S AUXILIARY NEWS?

It will soon be time for the yearly reports. That which each of you has accomplished will determine, in a greater or lesser degree, the success for which our Iowa Auxiliary can be credited. Your officers are counting on you.

—Gertrude F. Kilgore, *President*

Annual Meeting

The Annual Meeting Committee has big plans for your entertainment as well as for your information at the Annual Meeting that will be held in Des Moines, May 14 and 15, 1962. Please note the later-than-usual dates. Be sure to mark your calendar, so that your spring plans will include this.

Bulletin

B e a subscriber to the official publication of the National Auxiliary to the American Medical Association.

U se it as a reference for your programs.

L end an issue to an Auxiliary member who doesn't own one.

L et's put IOWA on the map subscription-wise.

E very county officer should take the BULLETIN.

T o be correctly informed, she should read the BULLETIN.

I OWA *can* be in the "top ten"! Let us strive to put it there.

N ovember-March-May-September, these are the months in which issues appear. Please note that the January number has been discontinued.

If you have subscribed and are not receiving your BULLETIN, please notify me.

—Mrs. George S. Atkinson
State BULLETIN Chairman

Membership Dues

Have your dues been sent to the state treasurer, Mrs. John Matheson, 4321 California Drive, Des Moines 12? They should be in her hands by March 1, 1962. Please do include 50c for the Health Educational Loan Fund (formerly Nurses' Loan Fund) when you send your state and national dues, making the amount of your check $3.50.

Your BULLETIN subscription check in the amount of $1.00 should be mailed directly to Mrs. G. S. Atkinson, 1004 Third Avenue East, Oskaloosa.

Art Exhibit

The Auxiliary will again sponsor an art exhibit open to members of the Iowa Medical Society, their wives and all Auxiliary members. Notice of the entry regulations, awards, etc., will be forwarded within a short time. It is hoped that this advance notice will help to secure even more entries than were shown in the first highly successful venture last year.

The art exhibit will again have space at the Veterans Memorial Auditorium near the entrance to the meeting room. There will be space available for paintings, sculpture, drawings and graphic art.

COUNTY AUXILIARIES

MAHASKA

The Woman's Auxiliary to the Mahaska County Medical Society held a one o'clock luncheon at the Downing Hotel, Oskaloosa, on Tuesday, January 9.

Mrs. Kenneth Lemon presided at the business meeting which followed. The secretary read a letter of thanks for the shipment of drugs sent to Thailand for the Leprosy Relief Project. Thanks were also extended to the Auxiliary through a letter from F. O. W. Voigt, M.D., for the decorating, purchase of gifts and hostessing for the Christmas party for the Mahaska County Hospital staff.

POLK

The Polk County Medical Auxiliary met for a 12:30 luncheon at the Wakonda Club in Des Moines on Tuesday, November 14, 1961, with 175 members and guests present.

Donald McBride, M.D., medical officer for the 132nd Air Defense Wing, gave an informative talk and answered questions pertaining to Civil Defense.

Mr. Ronald Reagan, motion picture celebrity, program director for and frequent star of General Electric Theatre spoke on the topic "Don't Sell Your Freedom Piece by Piece."

Mr. Reagan presented an absorbing talk dealing with the ever-increasing paternalism of government and decrying the socialistic trends that have appeared in our national life. By paraphrasing one of Mr. Reagan's remarks, the entire tone of his most interesting, stimulating and enlightening presentation may be conveyed: We may lose our freedom all at once by succumbing to a foreign aggressor OR we may lose it gradually by the erosion due to socialistic changes at home.

WAPELLO

The Auxiliary to the Wapello County Medical Society held a morning coffee, January 9, with Mrs. H. A. Spilman, Mrs. Paul Scott and Mrs. Wm. Maixner as hostesses.

The phonograph record "Operation Coffee Cup" was presented during the program, and all in attendance will write promptly to their legislators, as well as to other influential people regarding the very important subject with which it deals. The Auxiliary voted to continue with "Operation Coffee Cup" through the use of the record at various coffees planned in the near future.

The new AMEF card project was discussed, and orders for the decks of cards were taken.

The group assisted at that meeting in addressing invitations to an open dinner program on "British Socialized Medicine."

1962 AAPS Essay Contest Reminder

"It is a funny thing about essay contests, but it seems the time is never right to work on them. In the summertime, of course, the schools are out and the teachers are not available. In the fall there is football and hunting and at Christmas time there is Christmas time, etc., etc.," from the AAPS Newsletter of last month.

We, too, have deadlines to meet, thus a reminder. It is hoped that by now your schools have been contacted and students are working on the subject. Essays should be in the hands of the county chairman for judging by March 1 and in the hands of the state chairman by March 15 since they must be at the national office by April 1 for judging at that level.

Dr. Thomas Parker, National Essay Chairman, closed his Newsletter with "Remember, although it would seem that patriots should jump at the chance to help preserve our country, some of them need to be prodded with a hot rod to secure the initial and subsequent jumps. Maybe a Hefrecator would do, I hope you have one!"

Good Luck! Mrs. E. M. Honke, Community Service Chairman, 2608 Jackson Street, Sioux City 4.

Benefit Dance

Plans for the Health Educational Loan Fund Benefit Dance are well under way. It has become a part of the Annual Meeting to which everyone looks forward with anticipation. It not only affords a pleasant, friendly evening's entertainment, but gives all members an opportunity to help finance health careers recruitment through the purchase of a ticket.

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

President—Mrs. B. F. Kilgore, 5434 Woodland, Des Moines 12
President-Elect—Mrs. A. C. Richmond, 1132 Avenue A, Fort Madison
Recording Secretary—Mrs. F. L. Poepsel, West Point
Corresponding Secretary—Mrs. N. W. Irving, Jr., 4916 Harwood Drive, Des Moines 12
Treasurer—Mrs. J. H. Matheson, 4321 California Drive, Des Moines 12
Editor of THE NEWS—Mrs. Herbert Shulman, 101 Martin Road, Waterloo

JOURNAL of The IOWA MEDICAL SOCIETY

IN THIS ISSUE:

- The Drinking and Driving Problem, page 109
- The Search for Curable Hypertension, page 117
- The Treatment of Hypertension, page 128
- The Significance of Pain in the Diagnosis of Spinal Lesions, page 134
- Bone Physiology, page 140

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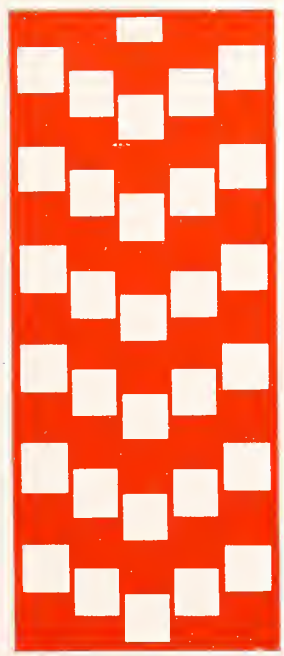

can parallel line

Though the vertical lines *appear* to bow out at the bottom, the fact remains . . . they are parallel. Similarly, when facts regarding oral penicillins are rearranged, they may distort the true picture. Low price and high "blood levels" are important considerations, but it's what a drug *does* that counts.

V-Cillin K® achieves two to five times the serum levels of antibacterial activity (ABA) produced by oral penicillin G.[1] Moreover, it is highly stable in gastric acid and, therefore, more completely absorbed *even in the presence of food*. Your patient gets more dependable therapy for his money . . . and it's therapy he really needs.

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1. Griffith, R. S.: Antibiotic Med. & Clin. Therapy, 7:129, 1960.

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Lilly

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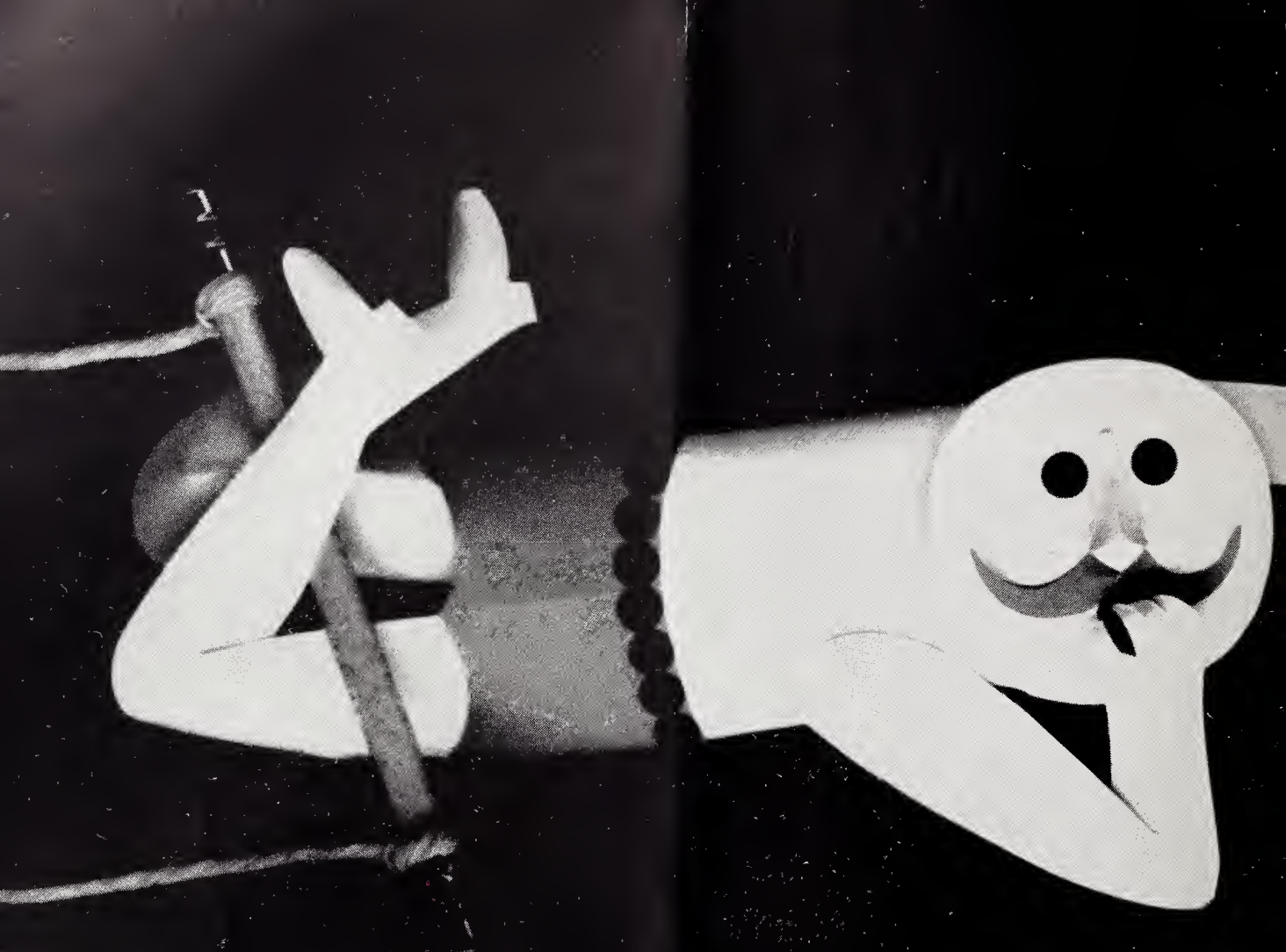
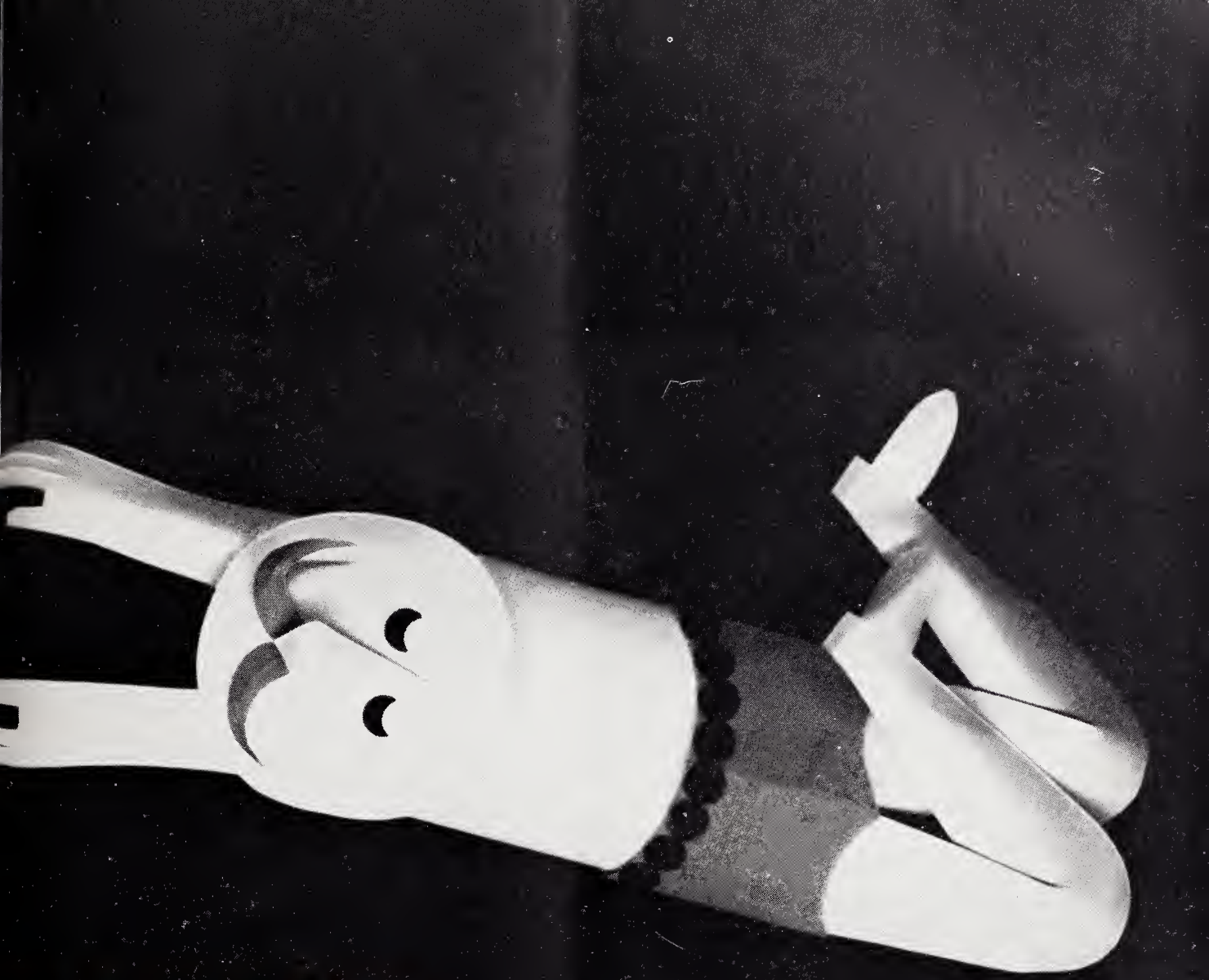
MARCH, 1962



when the perfect combination
is threatened by a cough.



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A Panel Discussion

The Drinking and Driving Problem

MR. CARL H. PESCH*

In approaching a discussion of the drinking driver, I think all of us have a mistaken tendency to consider the subject as a person of criminal inclinations. Safety propagandists, perhaps, are largely responsible for our attitude. They have often portrayed the drinking driver as no different from a thug with a gun in his hand. They have called him a killer, and they have called him a criminal. Although there may be considerable justification for both of those epithets, I think that they lead us away from the man whom we must consider.

The truth is that the man who tonight may have four or five drinks at a party, and then drive off and kill someone, is not, this afternoon, a criminal. At this moment he is at work, perhaps behind an executive's desk, a perfectly respectable member of his community. He is the average man, the family and church-going man. He certainly does not consider himself a potential criminal. We certainly could not consider him a criminal if we happened to meet him this afternoon.

Yet, he is the very man whom we shall be talking of shortly. He is the man who has a few drinks only once in a while. He is the man who will drive after drinking because he can't really believe all the safety propaganda against that act has been directed at him. We've been talking about criminals, killers, thugs. Certainly he isn't one of those. And so, once in a great while, he drinks and then drives. He is the man who turns up most often in our records of fatal accidents involving a drinking driver.

When we tag the drinking driver as a criminal killer before the act, we automatically excuse 99 per cent of our audience from the necessity of paying attention to what we are saying.

I'm sure no man in my audience would consider for a moment that he is potentially a criminal killer. Yet, I'm equally sure we could find that several in this or in almost any other group have occasionally driven cars after taking several drinks. The average person simply will not identify himself as tonight's drunken driver—even though that same average person may turn out to be so, and even though he, himself, is quite aware of that possibility.

This refusal to face facts has far-reaching significance. It not only aggravates the drinking-driver problem but actually prevents the adoption of laws designed to curb this abuse satisfactorily. The average male citizen envisions himself as the defendant in a drunk-driving case, and for that reason is reluctant to see measures passed that will make evidence easier to obtain or penalties greater than they have been. After all, according to our mores, taking an occasional drink is a convivial, social and manly thing to do, and the convenience of driving home afterward isn't something that any of us wishes to deny himself, either. Thus, the average man feels that really tough laws would be unfair to himself, the respectable occasional drinker.

In consequence, whenever an approach is made to strict legislation or to the enforcement of laws already on the statute books, two things happen. First, supporters become suddenly less numerous than they were expected to be. Second, from several quarters one hears the contention that civil liberties are being infringed.

As an attorney, I am extremely conscious of the constant need to defend the rights of the individual. I feel, too, that this defense is a particularly grave responsibility for any administrative department in the state or federal government. But I recognize, too, that the rights of the individual shrink dramatically as he increases his potential to do harm to the innocent. That is what happens when this afternoon's respectable man climbs into his car tonight after four or five drinks. He limits his individual rights the moment he touches the steering wheel.

Here in Iowa, as many of you know, we have developed a strict policy toward the drinking or drunken driver. It calls for suspension of the driver's license for one year upon arrest and before trial. The action is taken upon the presentation of satisfactory evidence by enforcement officers to the Department of Public Safety. This policy has been supported by a decision of the Iowa Supreme Court. But I recognize that this policy is essentially a stop-gap measure to compensate for inadequacies in the law. What is needed in legislation will, I think, be stressed by the other panel participants.

I have tried to point out to you that the people involved in the drinking-driver problem aren't limited to a small criminal group. It is a problem that tonight, next week or next month may involve one of us.

* This discussion occurred at the 1961 annual meeting of the Iowa Medical Society. Mr. Pesch is commissioner of public safety for the State of Iowa.

DR. HORACE E. CAMPBELL*

I should like to indulge in a bit of autobiography, if I may. In the spring of 1953, when I first became a member of the Automotive Safety Committee of the Colorado Medical Society, and for some time thereafter, the thing that appealed to me particularly was the possibility of changing the pattern or frame of reference in which accidents occur, and I concentrated my attention upon ways of improving automobile design so that the vehicle might crash without inflicting so many and such serious injuries. Then, while I was in Montreal at a meeting that dealt with the subject, I met the director of the attorney general's laboratories for the Province of Ontario. I asked him to tell me, in just three or four sentences, the crux of the alcohol aspect of the auto-crash problem, for I hadn't spent any time thinking about that phase of the subject, and it hadn't appealed to me as one in which I might become particularly interested.

That Canadian executive told me, "You people south of the border are trying to do the impossible. You are trying to control the alcohol problem with a blood-alcohol reading of .15 per cent, and that is just simply hopeless."

"What do you mean by .15 per cent?" I asked him.

"Your laws," he replied, "state that a man isn't really under the influence of liquor until his blood alcohol reaches .15 per cent, and it is completely hopeless to control the alcohol-driving problem by using so high a percentage."

Consequently, during the spring of 1955, I began to study this aspect of the problem, and I began to realize not only that my Canadian informant had been right but that the responsibility for our error, here in the United States, rested with the medical profession and the American Medical Association. In 1938, the AMA had been asked for the blood-alcohol percentage that represents intoxication, and the committee assigned to submit some figures had concluded that a man whose blood alcohol measures less than .05 per cent should not be deemed under the influence of liquor, but that a man whose percentage equalled or exceeded .15 should be regarded as showing *prima facie* evidence of being under the influence of liquor, in so far as his driving ability was concerned. The committee went on to say that blood-alcohol figures in the broad range between .05 and .15 per cent should not be regarded as *prima facie* evidence, but that in such instances the other circumstances should be considered in determining whether the individual was culpable.

Now, just what do these figures mean? Frankly, though I was then a physician of rather many years' experience, I didn't know until I was taught. A 150-pound man who has a blood alcohol of .05 per cent has as much alcohol circulating in his system as can be found in two ounces of 100-proof whiskey, or in two bottles of 4 per cent beer, and isn't badly affected in so far as his driving ability is concerned. What is .15 per cent blood alcohol? Of course it is exactly three times .05 per cent, but in order to acquire it a man probably has had to consume more than six ounces of 100-proof whiskey or eight ounces of the 80-proof stuff. He may have had to consume eight ounces of 100-proof liquor, for there will have been a certain amount of oxidation in the lines and alcohol-loss by breathing.

In other words, to attain a blood-alcohol reading of .15 per cent, one must have consumed *at least* eight ounces of 80-proof or six ounces of 100-proof liquor *within the previous hour.*

Now, no one whom I know can drink eight ounces of 80-proof whiskey and then drive adequately. Most of the men in my profession say that they don't want to drive after having had three drinks. They are not willing to drive after having had even two drinks unless they have eaten a meal and at least a couple of hours have elapsed. Yet at the moment, almost every American state that has a law designed to keep drinking drivers off the road has set the minimum blood-alcohol percentage at .15. Just as Dr. Ward Smith, of Canada, declared, we are trying to do the impossible south of the border. We must revise that percentage downward.

During the last couple of years, a movement has been started to reduce the blood-alcohol minimum to .10 per cent. New York has already passed a law to that effect, and the AMA and the National Safety Council are recommending to their respective state groups that the official limit be changed to that figure. Even that, however, is too high.

Ever since 1926, Norway has had a law stating that any person whose blood alcohol is .05 or greater shall be deemed unable to drive an automobile, and anyone found driving when his blood alcohol exceeds that figure is jailed for 21 days. My daughter was over in Sweden with the State Department for a couple of years, and she tells me that when she was on a date with a Swedish boy, he didn't walk near the curb if he had had something to drink. He walked near the sides of the buildings, for if the police find a fellow with .05 per cent alcohol in his breath standing alongside a car and with an automobile key in his possession, even though it isn't the key to that particular car, they bring a charge against him, and there's a chance of his spending the next three weeks under lock and key.

The Swedes and the Norwegians are still heavy-drinking nations, but they don't drink and drive. I have talked with many Swedes and with a great many American doctors who went to Sweden for the meeting of the American College of Surgeons

* Dr. Campbell is chairman of the Automotive Safety Committee of the Colorado Medical Society, a member of the Colorado Citizens Traffic Safety Committee, and a member of the Committee on Alcohol and Drugs of the National Safety Council.

in Sweden, and have been told each time that it is just the accepted thing there that the fellow who drives doesn't drink, and every hostess, in consequence, prepares a big pitcher of orange juice to serve to the non-drinking drivers. Those boys may drink tomorrow, but they aren't drinking tonight.

That is civilized behavior, to my way of thinking, and it is the kind of behavior that we must insist upon in this country. A person who has had two beers shouldn't drive. You may protest, "Two beers don't do anything to me," but it has been shown again and again, in driving tests at Bloomington, Indiana, up in Canada and over in Stockholm, that accustomed drinkers who have been given two ounces of 100-proof whiskey or two beers can thereafter be picked out on the basis of the way they drive.

Now, let's turn to another aspect of the matter. The National Safety Council advertises that seven per cent of all drivers involved in fatal accidents have been under the influence of liquor at the times of their mishaps. It has publicized that figure through exhibits at various medical meetings that I have attended, and I have remonstrated with the organization's representatives about it. The point is that the National Safety Council's figure is based on that same old .15 per cent blood alcohol. If a man's blood alcohol isn't up to .15 per cent, he is not under the influence according to the laws of most states, and thus the official records show that only seven out of every 100 drivers in fatal accidents have been intoxicated at the times of their accidents.

I have some figures that were collected by various individual states. Delaware, Maryland and New Jersey are the ones that have made really accurate studies on the people who are being killed in automobile crashes. For example, blood alcohol is tested on the body of everyone who has died of an automobile crash in the State of Maryland. The results show that 60 per cent of those individuals had been drinking, and 50 per cent of all those tested—not 50 per cent just of those who had been drinking, but 50 per cent of all drivers involved in fatal accidents—have had blood-alcohol percentages of .15 or more.

In Cuyahoga County, Ohio (Cleveland), the coroner has told me, "Blood is drawn for blood-alcohol determinations from every fatality received at this office, if the victim is over 15 years of age and has survived less than 12 hours following the accident. Under this policy, 55 per cent of vehicular-accident victims in this County were tested during the 19-year period from 1937 to 1955. In that length of time, alcohol was found to have been present in 46 per cent of the pedestrians, in 54 per cent of the drivers, and in 42 per cent of the passengers." Now it must be pointed out that in the course of 12 hours, an alcoholic content that may have been considerable at the time of the crash can have dissipated. Thus, the Cleveland test may have proved nothing when performed on individuals who died nearly half a day after their respective automobile crashes. If anything, then, the Cleveland figures are low.

In Maryland, the examination has been performed only on the corpses of individuals who died within six hours of their accidents, and those who had a chance to metabolize most of their alcohol before dying have thus been eliminated from the test group. The findings in that state, as I have said, are that 64 per cent of drivers involved in fatal accidents had been drinking, and that 50 per cent of them had blood-alcohol percentages of .15 or more.

What are we to conclude from these statistics? These figures simply show that the drinking driver is the largest single factor in our traffic death and injury problem. You can talk about defective brakes, about poor lighting on the highways, and about the driver's frame of mind or emotional state, but when you examine the figures summarizing the chemical tests that have been made upon drivers involved in fatal accidents, you must conclude that alcohol is the most important cause —at least as important, indeed, as all of the other causes combined!

We must begin to face this problem realistically. We must adopt legislation to characterize the drinking driver as the individual whose blood alcohol is, at the very most, .10 per cent. If we were to be as reasonable as the Swedes and Norwegians have been for almost half a century, we'd have to set the limit at .05 per cent.

REFERENCES

1. Gonzales, T. A., and Gettler, A. O.: Alcohol and pedestrian in traffic accidents, J.A.M.A., **117**:1523-25, (Nov. 1) 1941.

2. Press Release No. 7, January 28, 1958, Police Department, City of New York, 240 Centre St., New York 13, N. Y.

3. McCarroll, J. R., and Haddon, W.: A Controlled Study of Fatal Automobile Accidents in New York City, to be published.

4. Haddon, W., Jr., and Bradess, V. A.: Alcohol in single vehicle fatal accident, J.A.M.A., **169**:1587-93, (April 4) 1959.

5. Gerber, S. R.: The Role of the Coroner in Motor-Vehicle Deaths. Clinical Orthopedics, No. 9, page 303. Philadelphia, J. B. Lippincott Company, 1957.

6. Traffic Safety, October 1957, page 8.

7. Six Months of Deaths in Maricopa County: January 1 to June 30, 1958, Maricopa Safety Council, Phoenix Arizona.

8. Accident Facts, National Safety Council, 1956, page 53.

9. Accident Facts, National Safety Council, 1957, page 51.

10. Annual Reports of Department of Post Mortem Examiners, State of Maryland, 1950-59, incl., Russell S. Fisher, M.D., Chief Medical Examiner, 700 Fleet St., Baltimore 2, Md.

11. Freimuth, H. C., Watts, S. R., and Fisher, R. S.: Alcohol and Highway Fatalities, Traffic Safety Research Review, June 1960, pages 23-25.

12. Wilentz, Wm. C.: Resume of Annual Reports of the Chief Medical Examiner of the County of Middlesex, State of New Jersey, 1933-1959, Perth Amboy, N. J.

13. Kirwan, W. E.: Alcohol and the Police—Statistical Results Report, 1959, Bulletin of Bureau of Criminal Investigation, New York State Police, Vol. 25, No. 2, 1960, pp. 10-12.

14. Highway Safety Report, State of Connecticut, Department of State Police, 1959, page 14.

THE ROLE OF ALCOHOL IN FATAL TRAFFIC "ACCIDENTS"

Reference No.	Region Reported	Data for Years	Fatal Accidents	Driver Fatalities	Drinking Drivers Per Cent	Blood Alcohol Over 0.15%	Blood Alcohol Over 0.10%	Blood Alcohol 0.05-0.15%	Blood Alcohol 0.01-0.04%
1	N.Y. City	1928-1937		215	60		50%		
2		1957		69	55		55%		
3		1959-1960		34*	59		50%		
4	Westchester County	1950-1957		83†	73	49%	56%	20%	4%
5	Cleveland	1937-1955		885	54	40%		12%	2%
6	Montana	1956		134	55				
7	Maricopa Co., Ariz.	Jan.-June 1958	60‡		47				
8	Delaware	1955	97		57				
9	Delaware	1956	75 58‡		51 65	33%§ 43%§			
10	Maryland including Baltimore	1950-1959		983	69	40%		22%	6%
11	Baltimore	1951-1956		156	62	37%		21%	4%
12	Middlesex Co., N. J.	1948-1959		264	50	17%		33%	
13	State of New York	1959		92‖	87	51%	75%	33%	3%
14	State of Conn.	1959		36‖	67				

* Dying within six hours of the crash.

† Single-vehicle accidents, with death within 4 hours.

‡ Pedestrian fatalities eliminated.

§ Sixty-two per cent of the drinking drivers had blood alcohol readings over 0.15 per cent.

‖ One-car fatal accidents, with death within 24 hours.

MR. RICHARD L. HOLCOMB*

I shall talk about the various tests for intoxication. The breath test is not a new technic. Indiana started using it in 1937, and has used it continuously ever since. I am quite sure that there are more breath tests given for intoxication than there are blood and urine tests combined. I, myself, used the breath test when I was on the staff of the Kansas City, Missouri, Police Department, and I demonstrated it and ran 3,900 tests with it at the automobile show in New York City in 1939—22 years ago.

The whole principle of the breath test is that alcohol, after a relatively short time, is uniformly distributed throughout the body, and that any body fluid or tissue can then be relied upon to have an amount of alcohol in it that is proportional to the water content of that particular material. Further research showed that 2,100 parts of alveolar air contained the same amount of alcohol as could be found in one part of blood. Now that ratio was the subject of a certain amount of controversy, but the matter was reinvestigated by the parties to the dispute, and they finally agreed upon 2,100 to 1 as the correct figure.

Alcohol, of course, is the only substance to be found in the breath in any appreciable quantity. Ether or acetone can be found there, under some circumstances, but if one of them is found in the breath of a driver who is being tested for intoxication, the situation is most unusual. It occurs, I think, only as a fabricated defense against a charge of OMVI, rather than for any really good reason.

If the subject's breath changes the color of the substance used for the test, a significant amount of alcohol is present. With the Drunkometer, one measures the volume of breath expelled into the instrument in reaching the end point. With some of the other instruments such as the Breathalyzer, the subject expels a measured amount of breath into the instrument, and then the degree of color change in the chemical is measured photometrically. The Drunkometer uses an acid solution of potassium permanganate. In the Breathalyzer, potassium dichromate is oxydized down to potassium chromate, and the consequent change from yellow to green is photometrically computed.

The Breathalyzer is the newest of the chemical tests, although it has been commercially available for six or seven years and was under development for about 10 years before that. It was developed by Robert Borkenstein, who heads the Indiana State Police Laboratories and is a highly competent chemist. I think it is by far the best instrument from the standpoint of simplicity of operation and, moreover, permits the least chance of any sort of error.

* Mr. Holcomb, of Iowa City, is an associate professor and chief of the Bureau of Police Science at the State University of Iowa, and a member of the Committee on Alcohol and Drugs of the National Safety Council.

The potassium dichromate in the acid solution comes from the supplier in sealed ampules. Each of them has a control number on it, and its contents have been analyzed by several chemists at the factory. Those men have made complete records on the chance of their being called upon to testify in court as to the accuracy of the compounding. Potassium dichromate is the only chemical that the Breathalyzer uses, for there are no permanent chemicals in the instrument. It has a shelf life so long that there is no need for worry about its deteriorating before it is used.

One inserts the ampule that he is going to use for the test, after breaking off the tip, and he uses another ampule as a control. They simply drop into the instrument. Then one takes a small bubbler tube that comes sealed, hooks it up, and drops it down into the test ampule. Then the instrument is allowed to heat to body temperature, or slightly above. There is a thermometer in the instrument so that the operator can make sure he is working at a temperature between 45 and 50° C. If so, there will be no vaporization of alcohol out onto the walls of the instrument.

After dropping the ampules into the instrument and connecting them, one flushes out the system with a bulb, pumping air into the entire apparatus so that the defense can't claim that some alcohol could have remained in the instrument from the breath of the subject last previously tested. Next, one turns on the light in the photometer and balances the two ampules against one another, to make sure that the same amounts of light are reaching both of the photoelectric cells. By this maneuver, the operator makes sure that he is starting the test from a known point.

A spit-trap is hooked up to catch any excess saliva. It is a one-use, disposable thing. The tube, which has been allowed to become warm, is pulled out, and the subject is told to blow through it and to continue blowing. He can start with no more than a medium breath, or if he wishes, he may take an especially deep breath.

As the subject blows, the air enters a small cylinder containing a piston. His breath raises the piston to the top of the cylinder, and when the piston has passed a couple of holes, the air passes on out through the remainder of the instrument. When he quits blowing, the piston drops back just far enough to cover the two holes. Thus it has captured a known sample of air—about 52 cc.—and since it is from the "end" of the subject's breath, it has come from his alveoli, where the ratio of alcohol to air is constant.

The next step is simply to turn the knob on the top of the machine to the "analyze" position. The weight of the piston then forces the air or breath through the chemical. The color change takes place, and then one again centers the photometer, zeroing it this time by turning a knob on the top of the instrument. In doing so, one also swings a hand across a scale that is calibrated directly in

percentages of blood alcohol. Under that scale is a removable chart, and by depressing a rubber pointer one transfers the test result to it for use in court.

Now it has taken me longer to describe this test than it takes to give it, but let me tell you another precaution. On each test record is a list of the steps involved in the test, and as the operator performs each of the operations, he checks it on that list. The record contains spaces also for the name of the subject, the blood-alcohol reading, the ampule number, the date, the name of the operator, etc. for verification of the findings in court.

Actually, the term *breath test* is a misnomer, for the procedure is really a blood test. The breath serves only to carry the alcohol from the blood to the collecting device. The technic is a great deal simpler than the one that requires sticking a needle into the subject, pulling out a blood sample, sending it to a laboratory and having the alcohol isolated by means of distillation, dessication or aeration. The breath test takes no more than a moment, only a single step is involved, and only a single technician is required in performing it.

In various parts of the country the accuracies of breath, urine and saliva tests have been compared, and it has been found that the results are as nearly identical as are the results of any two successive blood analyses. Furthermore, with the breath tests there is much less chance for confusion or other sorts of error.

The Drunkometer was developed by Dr. Harger, at the Indiana University Medical School, for the purpose of determining whether or not the unconscious patients brought to the University Hospital emergency room were unconscious because of injury or illness, or were dead drunk. Since he was also state toxicologist, he saw the applications of his device for police work, but like Dr. Harger, you Iowa physicians may find it useful in solving some of your own problems.

Let's suppose that an unconscious patient is brought to you for care. You find that he has all the symptoms of intoxication—chiefly a strong odor of alcohol about him. If you had a breath-testing device you could answer the question instantaneously. Clinical signs of this sort can have any of several explanations. The commonest, judging from police experience at least, is that the patient is a diabetic, but the other possibilities include a light stroke or a head injury in which there has been minimal bleeding from the scalp. A breath-analysis device could give you an immediate answer, as far as intoxication is concerned.

Dr. Campbell has commented on the importance of intoxicated drivers in our traffic problem. I have been working in this field since 1937, I have done considerable research on the effects of liquor on driving ability, and I have visited the scenes of a great many accidents. As far as I am concerned, it is time for us to quit fooling around with drunken drivers. Actually, I can see no acceptable alternative other than the Scandinavian laws that Dr. Campbell has described.

MR. WILLIAM N. PLYMAT*

I should like to add a few statistics to the ones that Dr. Campbell has presented, reemphasizing the fact that alcohol is by far the greatest single cause of our traffic-accident problem.

Studies made in Evanston, Illinois, and elsewhere have indicated that somewhere in the neighborhood of 12 per cent of all drivers on our highways actually have been consuming alcohol, though less than .5 per cent of that number have enough alcohol in their blood so they might be convicted of drunken driving. Yet, Dr. Campbell's report that 50 per cent or more of fatal-accident drivers had consumed alcohol is altogether credible. The important thing that we should look for is the percentage at which impairment begins. Studies in Sweden and in Canada have shown that it starts when there is .03 per cent of alcohol in the blood, and the Swedes say that when the percentage reaches .05, driving ability has been impaired by 30 per cent.

In Montana during 1955 and 1956, a total of 438 persons were killed in 347 automobile accidents. Blood samples were obtained from 202 of those victims, but in 14 cases the samples had been contaminated by embalming fluid and had to be discarded. Of the remaining 188 sampled, 23 per cent showed under .05 per cent blood alcohol; 31 per cent showed between .05 and .15 per cent; and 46 per cent showed .15 per cent or more. It can be seen from those figures that substantial deterioration in driving ability must result from the consumption of enough alcohol to produce percentages between .05 and .15.

Our statutes on this subject are vague and indefinite. The offense of which people are accused is, for all practical purposes, "drunk driving," something that is just as capable of varied interpretations as were the "unreasonable and improper" speeds for which our Iowa courts were asked to punish people under laws that were on our books until just a few years ago. Every juror has a different notion of what drunkenness is. In a large number of states, the drunk-driving statutes have been fortified by supplementary regulations known as "statutory presumptions." Under these, blood-alcohol percentages in excess of .15 are called presumptive evidence of violation, percentages less than .05 are called presumptive evidence of innocence, and percentages between those two figures are said to constitute evidence that shall be considered along with other facts in the case. Now Iowa is among the handful of states that

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* Mr. Plymat, of Des Moines, is president of the Preferred Risk Mutual Insurance Company, a member of the Iowa Bar, and a member of the Committee on Alcohol and Drugs of the National Safety Council.

don't have even these statutory presumptions. Iowa has nothing in this area!

In the present state of affairs, Iowa enforcement officers have learned through sad experience that except in very unusual circumstances they'd better not charge anyone with drunken driving without being able to show that the accused had a blood-alcohol percentage in excess of .15 per cent, for otherwise he'll certainly be found not guilty. This means that in this state our effective legal limit is three times higher than it ought to be.

Now I come to the question of what action we should take in solving this problem. The plain fact is that a large number of the people who are drinking and driving will persist unless there is a precise legal system under which they will be punished for doing so. What we need to do, I think, is to approach this problem in the same way that we have approached the problem of regulating speed. We now have speed limits in terms of miles per hour, and we need blood-alcohol limits, along with statutes that will insure the measurement of blood alcohol whenever our law-enforcement officers think it advisable.

Nine states, thus far, have passed "implied consent" laws. They are New York, Kansas, Utah, Idaho, North Dakota, South Dakota, Nebraska, Vermont and Rhode Island. Many others are considering them. When a proposal of this sort was made in the Iowa legislature, a protest arose about its infringing upon the rights of drivers. I should say that our legislators have more reason to concern themselves with the rights of drivers in general than with the rights of those who wish to drink and drive! The proposed statute doesn't require absolutely that drivers must submit to the test, but imposes a strong penalty on the driver who refuses. We must remember that a large number of drivers are not going to stop drinking in order to protect your life or even their own, but will stop drinking to safeguard their licenses. If this type of legislation is passed, it seems rather clear that it will save a substantial number of lives in Iowa.

The insurance company with which I am associated has written and has widely distributed a model bill that incorporates the two highly desirable features to which I have referred, and also includes a section designed to make sure that the test will be given only by competent persons, as well as other similar safeguards. As regards the alcohol content of a driver's blood, it delineates three separate offenses, one for percentages between 0.5 and .10; one for percentages between .10 and .15; and one for percentages equal to or in excess of .15. In addition, it sets a penalty for the fellow who has refused to submit to the test. Copies of this model act are available from my firm on request.

Here is how such a measure would work. A driver who had been found to have between .05 and .10 per cent blood alcohol would be fined between $50 and $250, but would not be jailed or deprived of his driver's license. One with a percentage between .10 and .15 would be fined between $100 and $250, and/or would be sentenced to jail for anywhere from two to 30 days. In addition, his license would be suspended for 90 days. A driver who was found to have had .15 per cent or more of blood alcohol would be fined between $250 and $1,000, and/or jailed for anywhere from five days to a year. His license would be suspended for 90 days. The driver who was accused but was unwilling to take a breath test would, on conviction, be fined and given a jail term ranging from five days to a year, and his license would be suspended for 90 days.

Let's take a hypothetical example. A police officer stops a driver whose car has been weaving noticeably, and smells liquor on his breath. He tells the man that if he refuses to take a breath test, his license will be suspended.

"What's the penalty for driving after drinking just two beers?" the prisoner asks.

The officer tells him that if he has been drinking as moderately as that, he is almost certain to go free.

"What happens to a man who has had four beers?" the prisoner wants to know.

The officer tells him the penalties.

"If I don't take the test and yet am convicted, what will I get?" the man asks.

"In that case," the officer replies, "you'll really get it."

Under these circumstances, it seems to me that most people would agree to take the test.

What would be the effect of such legislation on drivers generally? I think that even the man who is convinced that he can drive adequately after four to six shots would no longer take the risk of doing so. He could be relied upon to treasure his driver's license, his pocket book and his liberty too greatly. Such a change in attitude is what I choose to call "driver orientation." A system of exact standards, plus implied consent for breath tests, will create in these people a willingness either to quit drinking or to forego driving after drinking.

YOU'LL HEAR ABOUT

Casualties in nuclear-weapon warfare

at the

ANNUAL MEETING OF THE IOWA MEDICAL SOCIETY

May 13-16

Veterans Memorial Auditorium, Des Moines

Iowa Doctor's Report From Hongkong

As a member of the Iowa Medical Society, I should like to report the interesting work that I have been doing, since last October, in Hongkong.

During the last two months, I have been treating such diseases as elephantiasis, liver flukes, malaria, all sorts of tropical skin diseases and intestinal parasites, and plenty of pulmonary tuberculosis, too.

Hongkong, a British crown colony, covers about 270 square miles of land and has 3,500,000 people including 1,500,000 refugees from Red China.

I resigned my position at Iowa State University to represent Promise, Inc., of Ames, in building a medical clinic, a church, a school and a demonstration farm for these refugees—to take care of the WHOLE MAN. The drugs, hybrid seeds, insecticides, etc., paid for by Promise, Inc., have arrived by the ton, and we have been able to start the work. We hope to have the project fully operational in a short time, but we already have two clinics rendering medical service.

The morbidity report for the Colony, published last week, may be of some interest to Iowa physicians. They should keep in mind that 98 per cent of the 3,500,000 are Chinese, and perhaps not more than 10,000 are of other Asian nationalities or Europeans. The climate is semi-tropical. There are plenty of tropical and semi-tropical diseases. There was a very severe cholera epidemic last summer. Typhoid fever is endemic and so is dysentery.

From the above figures, one can readily believe the reported death rate, but the figures for infectious diseases are not reliable. There still are two systems of medicine being practiced in Hongkong. The Western method is practiced by about 700 registered physicians from Great Britain, Canada, Australia and other Western countries. Only about 400 of them are in private practice; the rest are in the service of the Hongkong government.

There are unknown numbers of Chinese herbists, whom the government does not license. They can treat patients in their own way, but may not perform surgery, give injections or dispense Western poisonous drugs. Moreover, they cannot issue death or birth certificates and may not report infectious diseases. When they see cases of diphtheria, for example, they cannot report them, but can attempt to treat them until the patients die or until a qualified man takes the cases. When one of their patients dies, some sort of a death certificate for him can be found in the "black market." Thus, not only the infectious disease rates but also the statistics on causes of death are undependable.

We estimate that the total number of tuberculosis patients must have been as high as 250,000. There aren't enough beds for the tuberculosis patients, and they can't be segregated. I have seen several of them actually sleeping with scores of other persons in the same flats.

Pak-Chue Chan, M.D.

HONGKONG HEALTH AND MEDICAL SERVICE REPORT—WEEK ENDING JANUARY 11, 1962

36 deaths from acute and infectious diseases (including 27 from tuberculosis, 1 from poliomyelitis and 3 from diphtheria)

Infectious Diseases Reported During the Week:

Disease	Cases
Pulmonary tuberculosis	306
(These were new cases. A total of 12,584 cases were reported for the year 1961.)	
Bacillary dysentery	10
Amebiasis	1
Typhoid fever	10
Poliomyelitis	4
Chicken pox	4
Diphtheria	38
Measles	2
Scarlet fever	1
Ophthalmia neonatorum	5
Malaria	19

Births Registered for the Week:

Hongkong	588
Kowloon	1,044
Kowloon new territories	258
Total	1,870

Deaths Registered for the Week:

Hongkong	90
Kowloon	174
Kowloon new territories	35
Total	299

The village in which Dr. Chan has located his first Hongkong clinic unit.

Scientific Articles

The Search for Curable Hypertension

RAY W. GIFFORD, JR., M.D.*
Cleveland, Ohio

IN THESE DAYS when we have potent and reasonably effective antihypertensive drugs, I think we are prone to disregard and forsake both the older diagnostic procedures and some of the newer technics that are useful in establishing the cause for hypertension.

Of course we are all aware that in most cases, in spite of very thorough investigation, no cause can be found. In such instances, we are justified in utilizing "wastebasket" diagnoses. Examples of these are "essential hypertension" or "idiopathic hypertension," neither of which means much. You may have heard Dr. E. H. Rynearson, of the Mayo Clinic, explain that "idiopathic" comes from the Greek: *idio*—"I don't know" and *pathic*—"what the hell it is."

On the other hand, however, if we search for the cause of hypertension in each instance, we find that there are more and more cases for which we can find causes. It is probably impossible to set a percentage of patients for whose hypertension there may be curable causes, but certainly it is in the range of 5 to 10 per cent. And as we learn more about diagnostic technics and more about hypertension itself, I am sure we shall find more and more potentially reversible cases.

Even though the curable types of hypertension are rare and few, there are reasons for our spending some time searching for them. The medical treatment for hypertension is still no more than palliative, and it leaves a great deal to be desired, for the side-effects are troublesome. Furthermore, many patients do not adhere to the regimen faithfully, and it does no good if it isn't followed.

* From the Department of Hypertension and Renal Diseases, The Cleveland Clinic Foundation, Cleveland, Ohio. Dr. Gifford was a member of the Staff in Internal Medicine at the Mayo Clinic at the time he made this presentation at the 1960 Mercy Hospital Medical Day in Des Moines.

CLUES TO THE CASES THAT ARE CURABLE

There are certain clues that suggest to us which cases of hypertension may be secondary to discoverable and curable causes. The first of these is sudden onset of hypertension, or exacerbation of pre-existing hypertension, especially if the family history is negative. The second is occurrence in a person less than 30 years of age, and particularly in a child. Third is the early appearance of retinopathy of group III or group IV. By this I mean

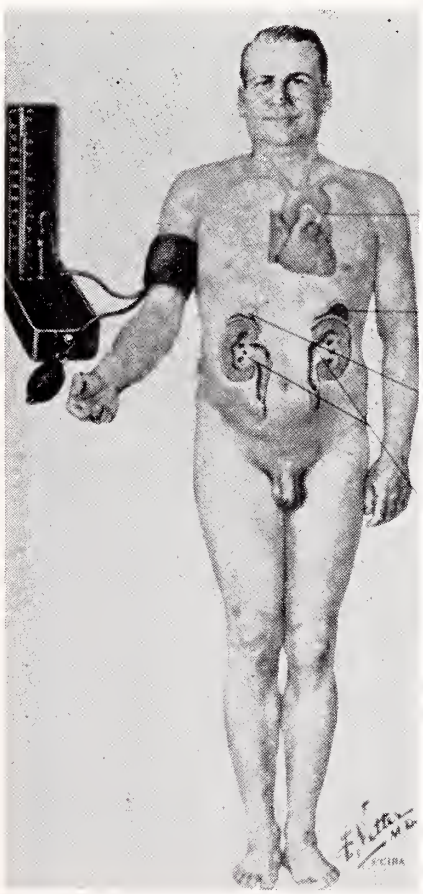

Figure 1. Some causes for secondary hypertension. (Courtesy of Ciba Pharmaceutical Company.)

the appearance of hemorrhages, exudates, and papilledema in the optic fundus soon after the onset of hypertension. Fourth is severe hypertensive retinopathy, including marked arteriolar narrowing with focal constrictions, hemorrhages and exudates, but with little or no sclerosis of the retinal arterioles.

The latter is simply a more elaborate way of saying "hypertension of recent onset." In many cases the history with regard to onset of hypertension may not be altogether clear. The patient may not have had his blood pressure taken regularly. Thus, minimal sclerosis in the retinal arterioles, or none at all, is indirect evidence that the hypertension is of recent onset. In spite of these clues, however, many cases with curable causes may be overlooked unless we become compulsive about routinely subjecting hypertensive patients to certain laboratory procedures.

Figure 1 lists some potentially curable causes for hypertension: coarctation of the aorta, pheochromocytoma, Cushing's syndrome, primary aldosteronism, and unilateral renal parenchymal disease such as pyelonephritis, tuberculosis, cysts, and others. To those, we can add renal artery disease. The latter did not appear in the drawing, although it was made just a few years ago. This circumstance provides rather dramatic evidence that we are still in the process of discovering curable causes.

COARCTATION OF THE AORTA

The clinician should always palpate the femoral pulses of hypertensive patients, but I fear that many of us have been surprised on at least one occasion by an x-ray report containing the diagnosis "coarctation of the aorta" (Figures 2 and 3). Such a patient has a reduction of blood pressure and amplitude of arterial pulsations in the lower extremities, and hypertension in the upper extremities, but one can miss the diagnosis unless he makes a habit of feeling the femoral pulses. This oversight occurs in examinations not only of children but of adults as well. Moreover, it can be missed repeatedly, for patients present themselves as adults without any doctor's having previously suspected the diagnosis.

When coarctation occurs in the usual site (Figure 4), there is diminution or absence of pulses in the lower extremities, and there is hypertension, usually not severe, in the upper extremities. If the coarctation is at the take-off of the subclavian artery on the left, there will be hypotension and either impalpable or reduced pulses in the left arm as well as in the lower extremities. In some cases there is an anomaly of the aortic arch so that the right subclavian artery takes off distal to the coarctation. In that event, there is low blood pressure and diminution or absence of pulses in the right arm. In other cases, the ductus arteriosus may remain patent distal to the coarctation, and then if there is reversal of flow, there will be cyanosis confined to the lower part of the body.

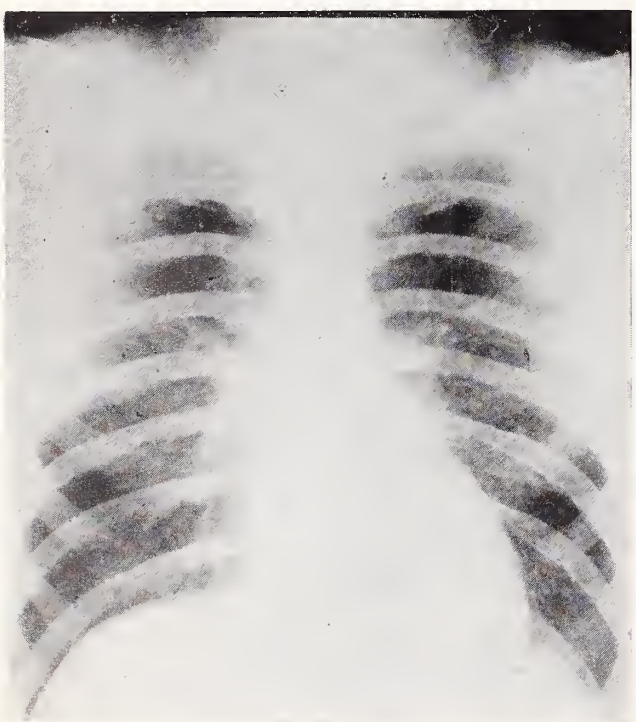

Figure 2. Roentgenogram of the chest of patient with coarctation of the aorta, demonstrating absence of aortic knob and notching of inferior edges of ribs due to dilated, tortuous intercostal arteries.

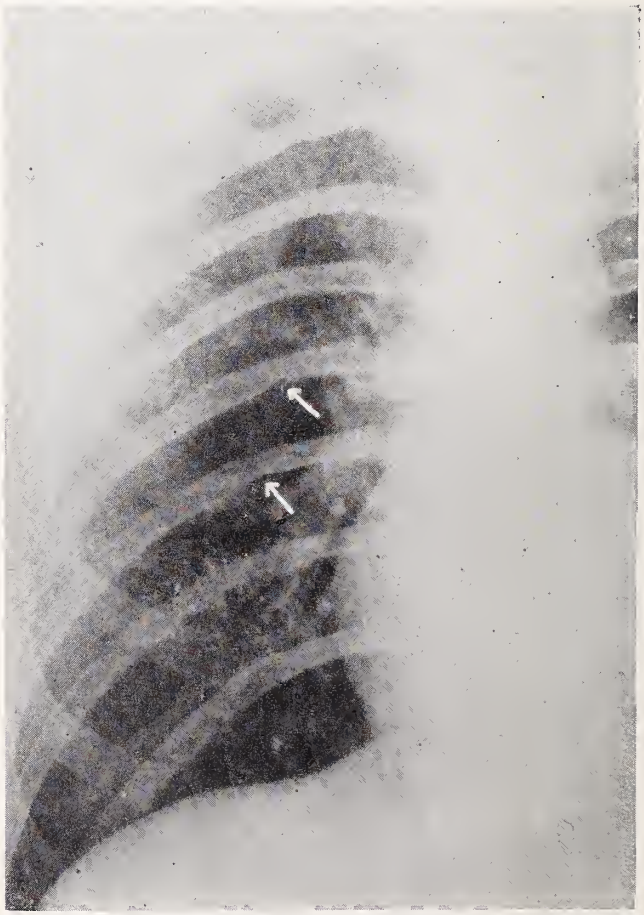

Figure 3. Roentgenogram of chest, demonstrating notching of ribs in case of coarctation of thoracic aorta.

Because there are bruits over collateral and dilated intercostal arteries (Figure 5), and because a systolic murmur may arise from the coarcted area, some patients have had the erroneous diagnosis of rheumatic heart disease. Therefore, when a young person with hypertension gives a history of a "rheumatic heart" or of a heart murmur, one must suspect that the difficulty has, instead, been a coarctation. It must be remembered that some patients with coarctation also have a bicuspid aortic valve, and there may be a regurgitant murmur due to that anomaly.

The treatment, of course, is to resect the coarcted area. Figure 2 shows lack of the usual prominence of the aortic knob and notching of the ribs. As I have said, the diagnosis should be made before the patient goes to x-ray, but unfortunately it often isn't. Figure 3 is a close-up showing the notching of the inferior aspect of the ribs due to the dilated, tortuous intercostal arteries that act as collateral vessels to carry blood around the coarcted area to the aorta (Figure 5).

PHEOCHROMOCYTOMA

Pheochromocytomas are chromaffin tissue tumors which usually arise from the adrenal medulla and produce epinephrine or norepinephrine, or both, and thereby cause hypertension. About 50 per cent of these tumors, for some reason or other, function only intermittently and thus produce the distinct clinical picture of paroxysmal hypertension, with all of the associated dramatic signs and symptoms. In 26 cases of paroxysmal hypertension due to pheochromocytoma, we have observed the symptoms enumerated in Table 1. Most of these patients have severe headaches, and it can be documented that they have hypertension if the blood pressure is taken during the headaches. Usually this is a significant hypertension, often ranging between 240/130 and 300/190 mm. Hg.

TABLE 1
PRESENTING COMPLAINTS IN 26 CASES OF PAROXYSMAL HYPERTENSION DUE TO PHEOCHROMOCYTOMA

Severe headache	Tremor	Pain in chest, back, hip or leg, epigastrium
Palpitation	Vertigo	Nervousness
Sweating	Anxiety	Nausea and vomiting
Pallor	Weakness	

People who are vascular hyperreactors and have migraine headaches will often have some increase in blood pressure during their headaches, by virtue of the stimulus of the pain. But it usually isn't as marked and dramatic as is the rise seen with pheochromocytoma. When the full syndrome is in evidence, it is very dramatic indeed. Pain in the chest is frequent; it may be angina or a pain resembling angina. During an attack, the patients usually sweat profusely and have a rather marked tremor. These patients, of course, are not truly hypertensive, and are not likely to give us trouble insofar as the diagnosis of sustained hypertension

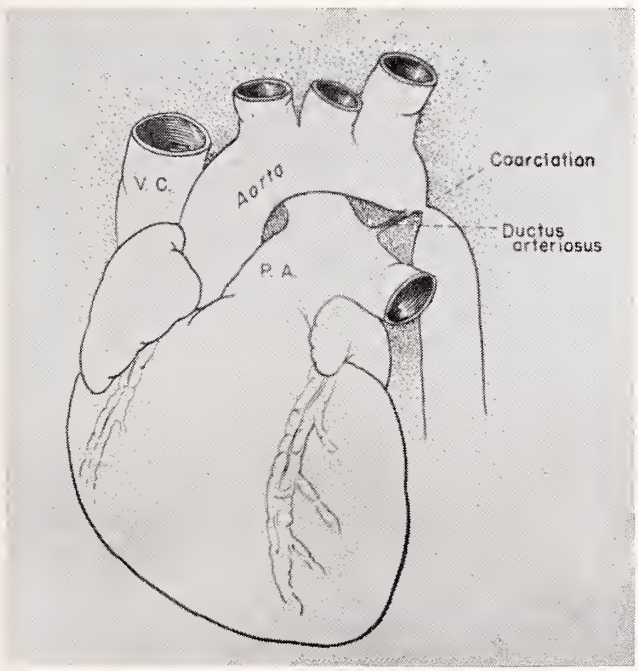

Fig. 4. Coarctation of thoracic aorta distal to left subclavian artery.

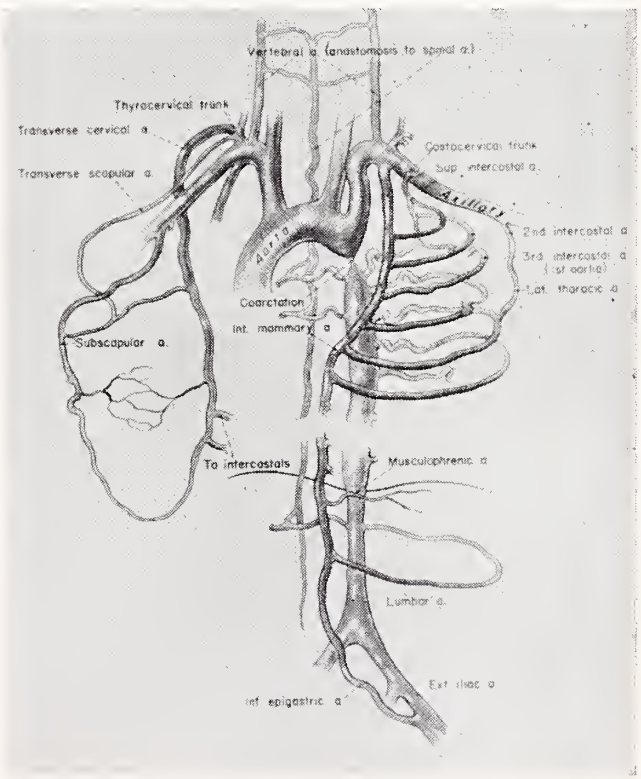

Figure 5. Coarctation of aorta with diagrammatic representation of collateral circulation. (From Allen, E. V., Barker, N. W., and Hines, E. A. Jr.: Peripheral Vascular Diseases. Second Edition. Philadelphia, W. B. Saunders Co., 1955, p. 311.)

is concerned, for between attacks their blood pressure is perfectly normal.

Table 2 contains data on paroxysmal hypertension due to pheochromocytoma. The basal metabolic rate is usually normal when the tumor functions paroxysmally. The blood sugar is usually within normal range, although in 11 of 25 cases there was elevation above 120 mg./100 ml., by the Folin Wu method. There are no striking changes in the retinal arterioles. Some arteriolar narrowing may occur, and occasionally there is some sclerosis, but often the optic fundus is normal, for the patients are hypertensive only for a very insignificant portion of the time.

TABLE 2
PAROXYSMAL HYPERTENSION: PERTINENT DATA—
12 MALE AND 14 FEMALE PATIENTS WITH
PHEOCHROMOCYTOMA

	Range	Average
Age in years	26-59	44
Weight in pounds	106-192	134.4
Height in inches	62-72	65

	Cases
B.M.R. %	
< −10	1
−10 to +10	15
+11 to +20	5
> +20	4
Blood Sugar in mg./100 cc. (Folin Wu)	
< 80	2
80 to 120	12
> 120	11
Optic Fundus (Keith-Wagener)	
Normal	12
Group I	12
Group II	1
Retinal hemorrhage	1

The diagnosis of paroxysmally functioning pheochromocytoma depends largely upon precipitating an attack by injecting histamine. It is important that the patient should not receive sedatives for several days before the test, and it is also important that an adequate basal blood pressure be established before the histamine is given. Histamine usually induces the paroxysm of severe hypertension (Figure 6), along with the symptoms which the patient experiences from spontaneous attacks. It is also important to do a cold pressor test either before or after the histamine test, in order to have some measure of the patient's vascular hyperreactivity. If putting the patient's hand in cold water will make his blood pressure rise as high as histamine does, one is probably dealing with a manifestation of vascular hyperreactivity, and not a paroxysmally functioning tumor.

The determination of catecholamines in urine or blood is not a completely satisfactory test for paroxysmally functioning pheochromocytoma. Obviously, if the urine is collected at a time when the tumor is not functioning, one isn't likely to find an excess of catecholamines. The same is true for pressor amines in the blood. On the other hand, if the blood or urine is collected at a time when the tumor is functioning spontaneously or after it has been stimulated by histamine, an elevation of catecholamines will then be found. This is another way of distinguishing pheochromocytoma from simple vascular hyperreactivity.

The patients who are most troublesome from a diagnostic standpoint are those in whom the hypertension is sustained, apparently because the tumors are functioning most of the time. As Table 3 indicates, their symptoms are similar to those of patients with paroxysmal attacks. They have headaches that are severe and often occur paroxysmally, even though the hypertension is sustained. The duration of the headache is usually shorter than ordinary hypertensive headache, however. Along with the headaches, they perspire, they have

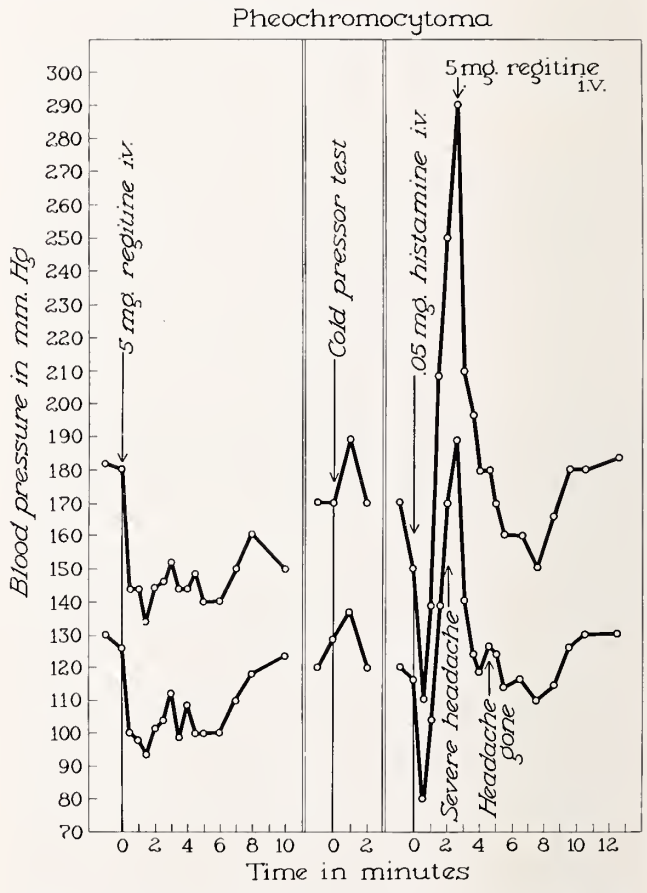

Figure 6. Positive pharmacologic tests in a patient with pheochromocytoma. Phentolamine (Regitine) caused significant decrease in blood pressure, and histamine caused pressor response, significantly greater than that during the cold pressor test. (From Gifford, R. W. Jr., Roth, G. M., and Kvale, W. F.: Evaluation of a new adrenolytic drug (Regitine) as a test for pheochromocytoma. J.A.M.A. 149:1628, (August 30) 1952.)

TABLE 3
PRESENTING COMPLAINTS IN CASES OF PERSISTENT HYPERTENSION DUE TO PHEOCHROMOCYTOMA

Attacks similar to those in paroxysmal hypertension:
Headaches
Perspiration
Nervousness
Palpitation
Tremor
Loss of weight
Hypertension

tremor, they are extremely nervous and agitated, and they usually give histories of weight loss. These symptoms also suggest hyperthyroidism, and this too must be ruled out.

Patients who have pheochromocytomas that function more or less continuously are usually thin. As a matter of fact, we almost automatically rule out pheochromocytoma as the cause for sustained hypertension in an obese patient. The data on these patients are summarized in Table 4.

The basal metabolic rate is likely to be elevated, sometimes to rather dramatic levels. The highest basal metabolic rates ever recorded at the Mayo Clinic have been in patients with continuously functioning pheochromocytomas. These individuals also tend to have elevations of the blood sugar, and findings in the optic fundi indicate rather severe hypertension. Some of them actually have papilledema. When one encounters the triad of

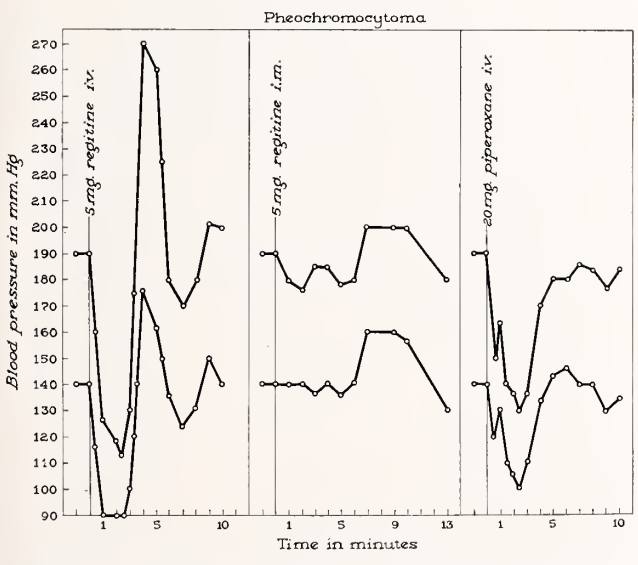

Figure 7. Positive response to phentolamine (Regitine) given intravenously, and falsely negative response to phentolamine given intramuscularly in patient with pheochromocytoma. The overshoot which followed the depressor response to the intravenous test is unusual. Piperoxan (Benodaine) also caused a positive depressor response, confirming the intravenous Regitine test. (From Gifford, R. W. Jr., Roth, G. M., and Kvale, W. F.: Evaluation of a new adrenolytic drug (Regitine) as a test for pheochromocytoma. J.A.M.A. 149:1628, (August 30) 1952.)

TABLE 4
PERSISTENT HYPERTENSION: PERTINENT DATA—13 MALE AND 11 FEMALE PATIENTS WITH PHEOCHROMOCYTOMA

	Range	Average
Age in years	12-67	35.6
Height in inches	61-70	65.2
Weight in pounds	90-169	121.8

	Cases
B.M.R. %	
< +10	3
+11 to +20	3
+21 to +101	15
Blood sugar in mg./100 cc. (Folin Wu)	
80 to 120	9
120 to 256	8
Not done	7
Optic Fundus (Keith-Wagener)	
Normal	1
Group I	4
Group II	7
Group III	8
Group IV	4

H's: *h*yperglycemia, *h*ypertension, and *h*ypermetabolism without hyperthyroidism, one should suspect pheochromocytoma.

The pharmacologic test for pheochromocytoma that functions persistently entails the use of a drug that will neutralize the effects of the pressor substance and rapidly bring the blood pressure down. Such a substance is phentolamine (Regitine). Positive responses are recorded in Figures 6 and 7, the blood pressure falling promptly to normotensive levels following the administration of 5 mg. of this agent. When given intramuscularly, Regitine may produce a falsely negative result (Figure 7), and for this reason we insist upon its being given intravenously. Piperoxan (Benodaine) can be used as a confirmatory test, for like Regitine it neutralizes the effect of circulating epinephrine and norepinephrine (Figure 7). But in patients with essential hypertension Piperoxan sometimes produces a further rise in blood pressure, along with palpitation, tachycardia, flushing, and general discomfort (Figure 8). Indeed this drug may sometimes precipitate angina pectoris in patients with preexisting coronary disease, whereas Regitine, when given to patients with essential hypertension, exerts no pressor effect and causes none of the other side reactions. Regitine is the drug of choice for patients whose initial blood pressure is above 180/120 mm Hg. Histamine should not be given to such patients, for it may result in a dangerous pressor response.

Patients who have sustained hypertension because of continuously functioning pheochromocytoma will have elevated values for urinary catecholamines and for blood pressor amines. As a

matter of fact, we have more or less come to rely upon these as screening procedures to rule out persistently functioning pheochromocytoma. Only for patients in whom we strongly suspect pheochromocytoma on a clinical basis do we also order the pharmacologic tests.

TABLE 5
INDICATIONS FOR TESTS FOR PHEOCHROMOCYTOMA

1. Spells of headache, sweating or tremor.
2. History of fluctuating blood pressure.
3. Hypertension in a young patient.
4. Hypermetabolism without hyperthyroidism.
5. Hypertension in a thin patient or one who has been losing weight.
6. Short history of hypertension.
7. Severe hypertension, group 2, 3 or 4, fitting any of the above categories.
8. Paradoxical response to the ganglionic blocking agents.
9. Unsatisfactory response to an anesthetic, with a rise in blood pressure.

Routine tests for pheochromocytoma, either pharmacologic or chemical, need not be carried out for every hypertensive patient (Table 5). When hypertension is severe; when it is accompanied by paroxysmal headache and profuse diaphoresis; when the patient is a young person; when the disease is of recent origin; or when it is accompanied by diabetes or hypermetabolism, one or both tests should be made to rule out pheochromocytoma. Also, patients whose blood pressures respond paradoxically to ganglion-blocking agents, or who react unsatisfactorily to induction of anesthesia (i.e., with a rise in blood pressure) should be suspected of having such a tumor. The diagnosis is sometimes made when a patient who is about to be operated upon for some other reason manifests a tremendous pressor response during the induction of anesthesia. Conversely, when an individual about to be operated upon for pheochromocytoma *fails* to show a rise in blood pressure during induction of anesthesia, I am always fearful that I may have missed the diagnosis (and sometimes this is the case!).

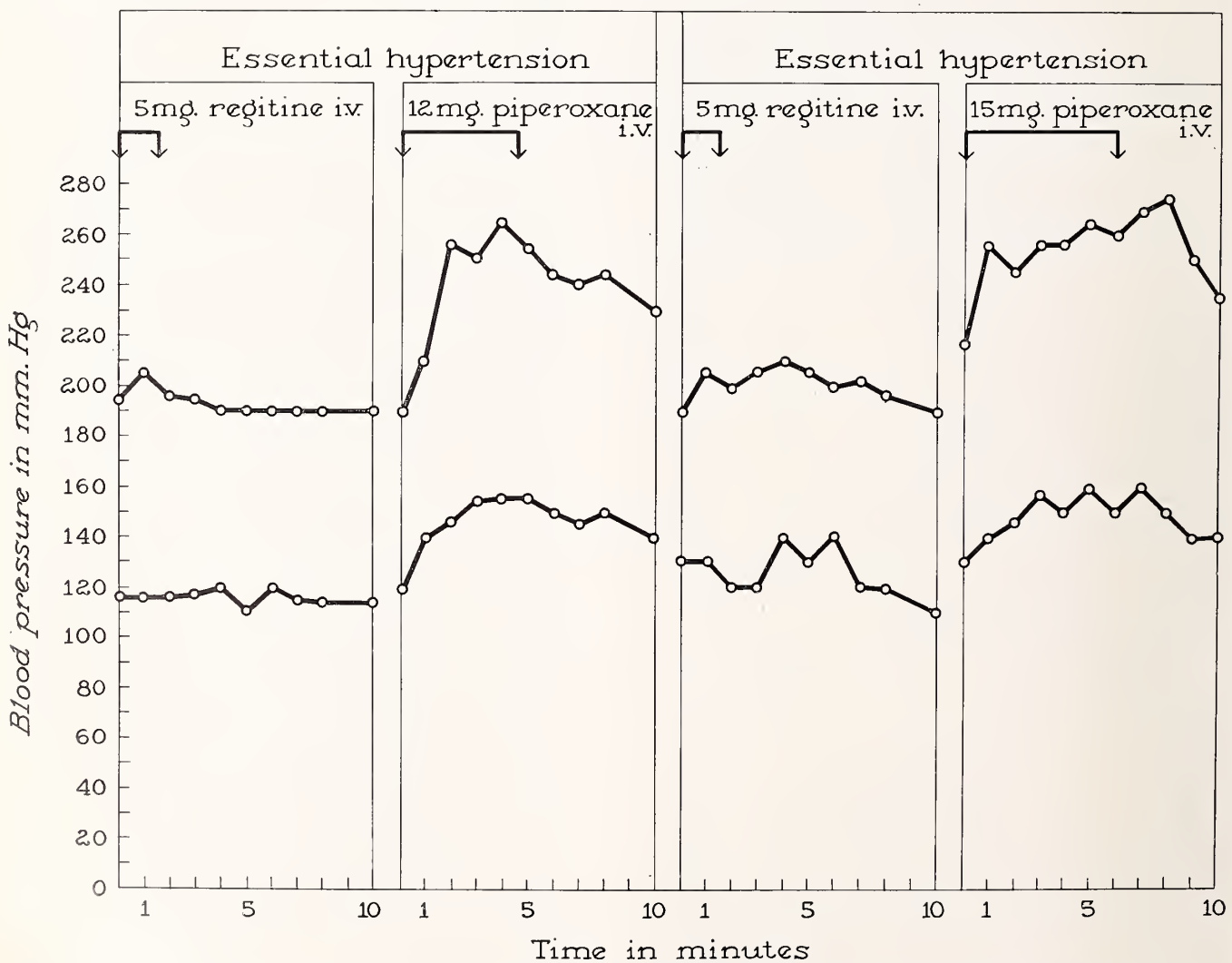

Figure 8. Pressor response to intravenous administration of Piperoxan is contrasted to the lack of any significant change in blood pressure when Regitine is given intravenously to two patients with essential hypertension. (From Gifford, R. W. Jr., Roth, G. M., and Kvale, W. F.: Evaluation of a new adrenolytic drug (Regitine) as a test for pheochromocytoma. J.A.M.A. 149:1628, (August 30) 1952.)

For the removal of pheochromocytomas, Mayo Clinic and Cleveland Clinic surgeons prefer an anterior approach for three reasons. First, preoperative localization is unnecessary. Second, ectopically located pheochromocytomas can be found. Third, bilateral tumors can be removed. The tumors can occur along the aorta, at the bifurcation of that vessel, or behind the right lobe of the liver. It is important that Regitine be given to the patient to combat hypertensive crises during induction of anesthesia and during manipulation of the tumor. Usually it is necessary that the patient receive a pressor agent during the first several hours postoperatively, for the blood pressure tends to drop dramatically to shock levels after the tumor has been removed.

CUSHING'S SYNDROME

I am sure that the patient shown in Figure 9 will be recognized as having Cushing's syndrome. About 90 per cent of patients who have Cushing's syndrome also have hypertension, and hypertension is sometimes the presenting complaint. There is no way of making a diagnosis of Cushing's syndrome without first suspecting it, and then making the necessary tests. And there is no way of suspecting it without recognizing the characteristic appearance of such individuals. The "moon face" isn't the only sign. The so-called "buffalo" or truncal obesity is evident in the patient shown in Figure 10, and the striae are especially distinct on the abdomen of the man shown in Figure 11, although the "moon face" is less pronounced in his case.

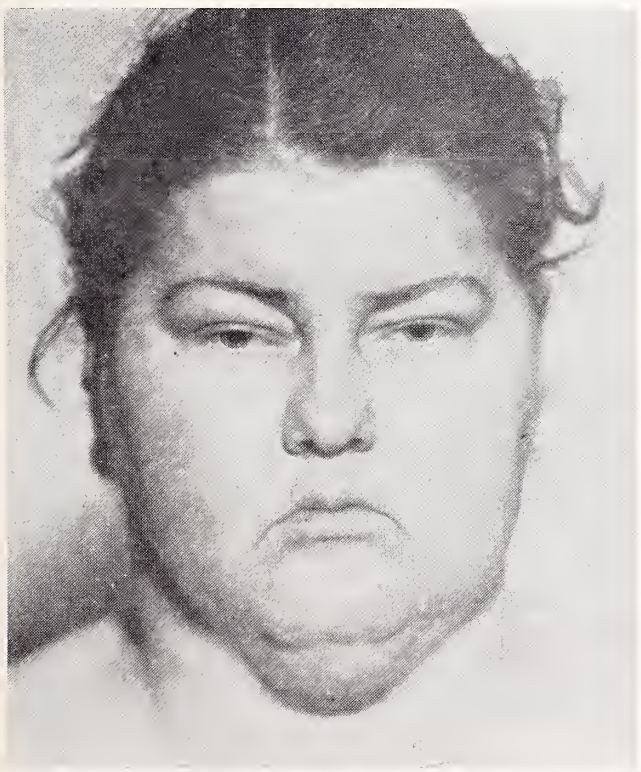

Figure 9. Typical facies of Cushing's syndrome. (From Sprague, R. G., Randall, R. V., Salassa, R. M., Scholz, D. A., Priestley, J. T., Walters, W., and Bulbulian, A. H.: Cushing's Syndrome. Arch. Int. Med. 98:389, (September) 1956.)

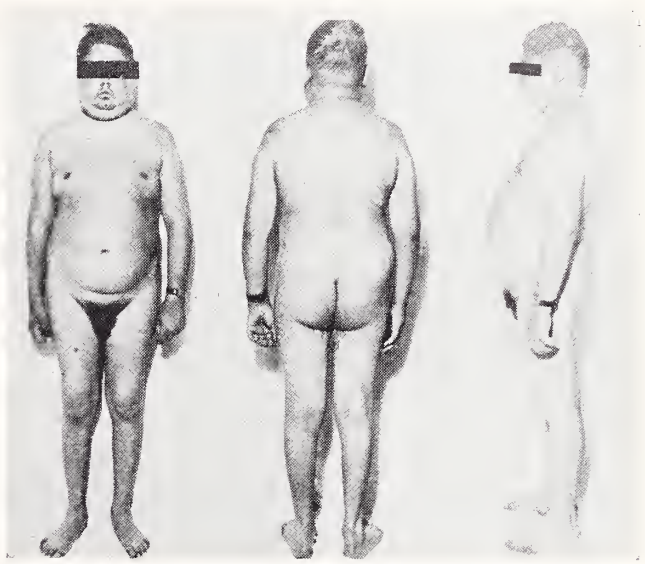

Figure 10. Body habitus in Cushing's syndrome. Truncal obesity is characteristic. (From Sprague, R. G., Randall, R. V., Salassa, R. M., Scholz, D. A., Priestley, J. T., Walters, W., and Bulbulian, A. H.: Cushing's Syndrome. Arch. Int. Med. 98:389, (September) 1956.)

Figure 11. Abdominal striae in Cushing's syndrome. (Courtesy of Dr. R. M. Salassa, Mayo Clinic, Rochester, Minn.)

The lady shown in Figure 12 has the cervico-dorsal hump that is typical of the syndrome.

Figure 13 shows four pictures of the same young man. When he came to the Mayo Clinic, he had the appearance shown at the lower left. Upon questioning, he admitted that his appearance and body habitus had changed recently, and upon request he produced old photographs to confirm this. The picture at the upper left in the figure had been taken two years before, and the one at the upper right one year before he was first seen. The picture at the lower right was taken six months after subtotal resection of his adrenal glands.

Thus, it is important to question patients about changes that may have occurred in their appearances. Some individuals always have had faces and bodily contours suggestive of Cushing's syndrome, but others have acquired such characteristics, and it is only the latter in whom the signs are pathognomonic.

Patients with Cushing's syndrome are usually women, and they usually have increased body and facial hair. Hirsutism is another characteristic about which hypertensive patients should be questioned. One should ask such women whether they have always had hair on their faces, or whether it is a recent development.

Table 6 contains a list of the clinical manifestations of Cushing's syndrome, and the frequency with which each was noted in 100 patients seen at the Mayo Clinic. The hypertension may be mild or severe, and resembles essential hypertension except for the fact that other features of Cushing's syndrome listed in Table 6 appear in conjunction with it.

TABLE 6
CLINICAL SIGNS AND SYMPTOMS OF CUSHING'S SYNDROME, 100 CASES*

Rounding of the face	92
Hypertension >150/90 mm. Hg.	90
Truncal obesity	84
Plethora of the face	81
Hirsutism†	74
Cervicodorsal hump	67
Purple striae	64
Acne and keratosis pilaris	64
Ecchymoses	62
Amenorrhea‡	35

* Sprague, R. G., Randall, R. V., Salassa, R. M., Scholz, D. A., Priestley, J. T., Walters, W. and Bulbulian, A. H.: Cushing's Syndrome. Arch. Int. Med. **98**:389 (September) 1956.
† There were 81 females including one child.
‡ There were 63 females between 29 and 45 years of age.

The laboratory findings in 100 patients are shown in Table 7. The clincher, of course, is the finding of increased amounts of corticosteroids in the urine, or elevated levels of plasma corticoids. Removal of the adrenal cortical tumor, or in the absence of a tumor, resection of the adrenal glands, either subtotally or totally, usually leads to

Figure 12. Cervico-dorsal hump in Cushing's syndrome. (Courtesy of Dr. R. M. Salassa, Mayo Clinic, Rochester, Minn.)

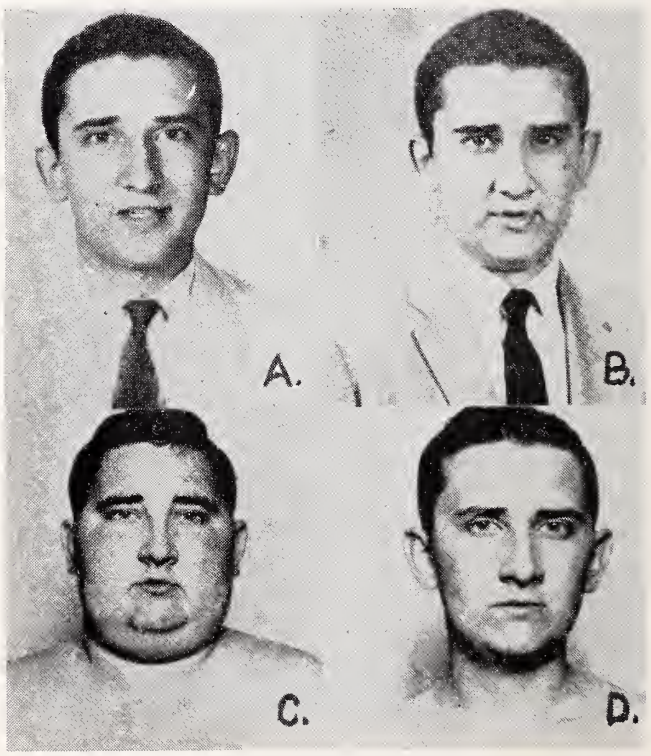

Figure 13. Cushing's syndrome—"before and after." See text. (Courtesy of Dr. R. M. Salassa, Mayo Clinic, Rochester, Minn.)

TABLE 7
LABORATORY FINDINGS IN CUSHING'S SYNDROME, 100 CASES*

Lymphopenia	81
Hyperglycemia†	57
Alkaline urine	37
Hypopotassemia	35
Alkalosis	26
Hypochloremia	15
Polycythemia	12
Hypernatremia	5

* Sprague, R. G., Randall, R. V., Salassa, R. M., Scholz, D. A., Priestley, J. T., Walters, W. and Bulbulian, A. H.: Cushing's Syndrome. Arch. Int. Med. 98:389 (September) 1956.
† Data obtained from 67 cases in which carbohydrate metabolism was adequately studied.

reversal of all the characteristics of the syndrome, including the hypertension.

PRIMARY ALDOSTERONISM

Primary aldosteronism, first described by Conn at the University of Michigan, masquerades as essential hypertension, and often one does not suspect it on the basis of historical data alone. The clinical symptoms and signs, and the laboratory findings are summarized in Table 8. A history of headaches, polyuria, polydipsia, episodic muscular weakness, and intermittent tetany should arouse suspicion of primary aldosteronism. The muscular weakness is a dramatic symptom, if present, but it usually isn't. The headache is not characteristic. All the cases that have been reported have had hypertension. Some patients have had positive Chvostek and Trousseau signs, but these findings are not usual.

TABLE 8
PRIMARY ALDOSTERONISM

Symptoms	Physical Signs	Laboratory Findings
Headache	Hypertension	Hypokalemia
Polyuria and polydipsia	Positive Chvostek and Trousseau	Hyperaldosteronuria
Episodic muscular weakness		Low specific gracity of urine
Intermittent tetany		Neutral or alkaline urine
		Alkalosis
		EKG changes of hypokalemia
		Hypernatremia
		High U/P ratio for potassium at low levels of serum K

The most important laboratory finding is hypokalemia. I know of no better or more practical way to screen patients for this syndrome than to determine the serum potassium routinely in all cases of hypertension. It is impractical to determine the aldosterone in the urine on a routine basis, for the test is complicated and time-consuming, and besides it is not specific, for there are other causes for increased levels of aldosterone in the urine, namely, congestive heart failure, cirrhosis of the

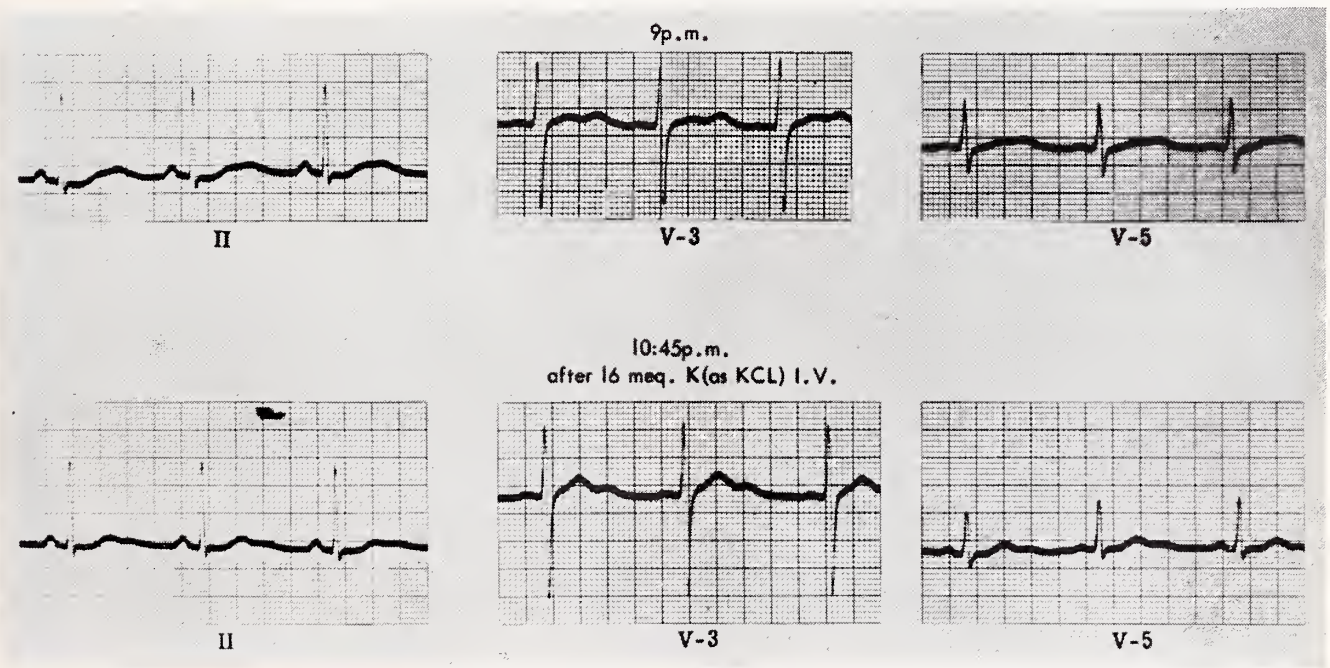

Figure 14. Electrocardiographic changes of hypokalemia with reversion towards normal after administration of potassium intravenously. (Courtesy of Dr. H. B. Burchell, Mayo Clinic, Rochester, Minn.)

liver, nephrotic syndrome, low sodium diet, and others.

Patients with this syndrome characteristically have a low specific gravity of the urine and a neutral or alkaline urine. It is more informative to perform a urine concentration test than to depend upon a random sample for specific gravity. Urine that has been stored in the laboratory for any length of time may have turned alkaline before analysis.

Electrocardiographers will tell us that the electrocardiogram is all we need to tip us off that the serum potassium is low. I suppose that if one is an expert in interpreting such tracings, this is correct, but since I am not an expert, I order serum potassium. Figure 14 is a characteristic tracing reflecting hypokalemia. The undulating S-T segment merges into an ill-defined T-wave, and there is a prominent U-wave. After potassium chloride has been given intravenously, the T-waves are much more prominent and the U-waves less so.

A very marked pattern of hypokalemia is shown in Figure 15. This patient had primary aldosteronism. When the serum potassium rose to 3.4 mEq/L. following the administration of a potassium salt, there was a marked change in the configuration of the T-waves and U-waves. When the serum potassium fell to 2.5 mEq/L., the electrocardiogram did not revert to the former pattern. This probably has something to do with the ratio of intracellular potassium to serum potassium. For this reason, I am unwilling to accept a normal electrocardiogram as conclusive evidence against primary aldosteronism.

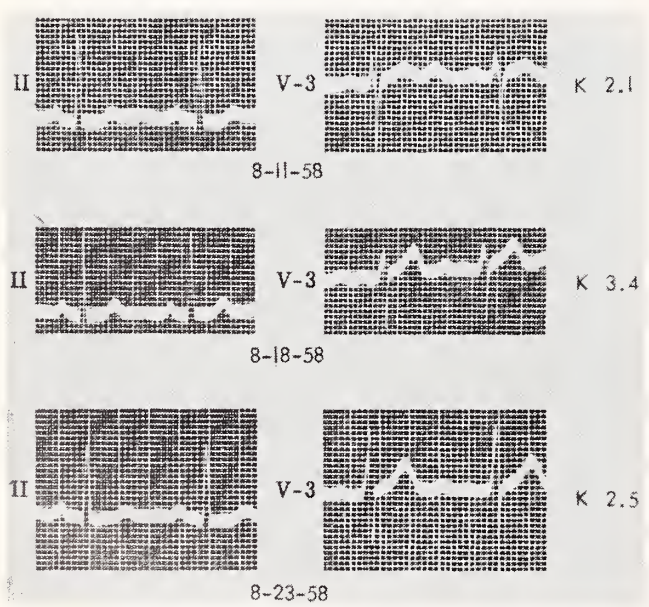

Figure 15. Electrocardiographic changes of hypokalemia in a patient with primary aldosteronism. (From Weaver, W. F., Salassa, R. M., and Burchell, H. B.: An evaluation of the electrocardiogram and the acidity of the urine as a screening test for primary aldosteronism. Am. J. Med. Sci. 238:162, (August) 1959.)

Figure 16 is a summary of observations made on a woman who has been seen periodically at the Mayo Clinic since 1942. She gradually became hypertensive about 1953. At approximately the same time, her urine began to give an alkaline reaction. It also became dilute (these were random specimens). The blood pressure elevation gradually became more marked. In retrospect the electrocardiogram suggested hypokalemia in 1954. It wasn't until Conn made his pronouncement in 1955 that we discovered that this woman had persistent hypokalemia. She had a little elevation of the plasma carbon dioxide, but not a very marked one, and it often isn't. In 1957, an adrenocortical adenoma was removed. We have now observed 13 such cases. Most were discovered by measuring serum potassium in hypertensive patients. I should point out, however, that by far the commonest cause for hypokalemia in hypertensive patients is therapy with one of the thiazide diuretics, and the serum potassium level may remain low for several days or even weeks after the discontinuing of such therapy.

Adrenal cortical adenomas are usually responsible for this disease, although in some young patients only hyperplasia has been found.

UNILATERAL DISEASE OF RENAL PARENCHYMA

A fairly common cause for secondary hypertension that is amenable to surgical cure is unilateral renal disease. The excretory urogram of one of the first cases described by Dr. N. W. Barker in his work on atrophic pyelonephritis as a cause for hypertension, back in 1939, is shown in Figure 17. This shows a contracted right kidney with a stone in it and compensatory hypertrophy of the left kidney. The right kidney, which weighed 40 Gm., was removed, and the patient has been normotensive ever since. There was no suggestive history of renal disease in this case. Because of

34-YEAR-OLD WOMAN (1942)

Year	Blood pressure, mm. Hg	Urinalysis		Plasma			Hypokalemia on ECG
		Reaction	Sp. grav.	Serum K, mEq./L.	CO_2, mEq./L.	Urea, mg./100 ml.	
1942	140/88	Acid	1 030	–	–	–	–
1949	140/90	Acid	1.036	–	–	–	–
1951	155/90	Acid	1.030	–	–	–	–
1953	190/100	Acid	1.020	–	–	–	–
1954	192/100	Alk.	1.018	–	–	24	Suggestive
1955	190/100	Alk.	1.010	3.2	29	30	Supportive
		Alk.	1.006	2.8	–	–	–
1956	195/110	Alk.	1.005	–	–	–	–
		Alk.	1.006	–	–	22	Characteristic
1957	210/120	Alk.	1.011	3.1	29	24	–
		Alk.	1.010	3.2	–	–	–
11/25/57: Operation—removal of adrenal cortical adenoma							
1958	140/85	Acid	1.008	4.9	25	44	Normal

Figure 16. A case of primary aldosteronism. (From Weaver, W. F., Salassa, R. M., and Burchell, H. B.: An evaluation of the electrocardiogram and the acidity of the urine as a screening test for primary aldosteronism. Am. J. Med. Sci. 238:162, (August) 1959.)

TABLE 9
POSTOPERATIVE RESULTS IN 61 HYPERTENSIVE PATIENTS WHO UNDERWENT UNILATERAL NEPHRECTOMY

Result	Time After Operation		
	Immediately (Two to Four Weeks)	Two Years Plus	Five Years Plus*
Good	31	25	10
Fair	13	10	5
Poor	17	20	11
Death	0	6	6
Total	61	61	32

* Figures in this colum are based on 32 traced patients.

this and many similar observations since, we now advocate routine excretory urograms as part of the work-up for hypertensive patients.

Dr. Barker reviewed his series about 10 years ago, and found that 61 hypertensive patients had undergone unilateral nephrectomy, mostly for atrophic pyelonephritis. The results are summarized in Table 9. In the immediate postoperative period, 50 per cent had "good" results, which means that they were normotensive. After five years, only 30 per cent remained normotensive. The longer such a group is followed, the more individuals are found once again to be hypertensive, but even a five year respite from severe hypertension is worthwhile.

RENAL ARTERY DISEASE

Probably the commonest cause for remediable hypertension recognized today is disease of one or both renal arteries or their branches. Figure 18 is a translumbar aortogram of a young hypertensive patient showing no opacification of the left main renal artery, but normal circulation to the right kidney. Removal of the left kidney brought about a reversal of hypertension, and the patient has been normotensive ever since. Whenever possible, of course, it is preferable to perform reconstructive arterial surgery and thereby preserve the ischemic kidney.

Renal angiography is indicated whenever a discrepancy in size or function between the two kidneys is demonstrated on excretory urograms. Unfortunately excretory urograms won't always give a clue to the presence of renal artery disease. If excretory urograms are normal, renal angiography is indicated when hypertension is of recent onset or when there has been recent exacerbation of chronic hypertension. It is also indicated for most hypertensive patients less than 35 years of age, and for patients with malignant hypertension regardless of age and duration of hypertension. This important cause for curable hypertension will be considered in more detail in the panel discussion that follows.

SUMMARY

I have attempted to present some of the diagnostic methods by which it is possible to ferret out those few cases of hypertension that are amenable to surgical cure. In most cases a surgical procedure is preferable to medical palliation.

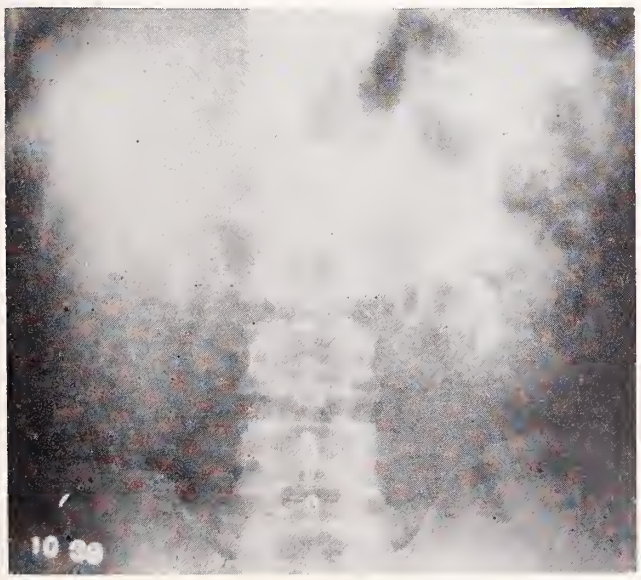

Figure 17. Excretory urogram showing atrophy of right kidney and compensatory hypertrophy of left kidney. Hypertension was cured by right nephrectomy. (Courtesy of Dr. N. W. Barker, Rochester, Minn.)

Figure 18. Translumbar aortogram showing non-opacification of left renal artery in patient with hypertension.

Panel Discussion

The Treatment of Hypertension

Question: Do you ever get "false-positive" catecholamines?

Paul From, M.D., Des Moines internist: "False-positive" catecholamine reports have occurred. The usual reason has been that the patient ate bananas within two or three days prior to the taking of urine for study. Otherwise, I don't know of any chemical causes for the phenomenon. Of course one sometimes sees slight rises of the urinary catecholamines—that is, rises above normal but not to the possibly ten-fold level that is usually regarded as within the diagnostic range for pheochromocytoma.

Question: Do metastases from a bronchogenic carcinoma to the adrenals ever produce "false-positive" catecholamines?

Dr. Gifford: No. Have you seen such a case?

Questioner: Yes, I have seen several within the past six months.

Dr. Gifford: "False-positives" are seen rather frequently. We use a fluorometric method adapted from Von Euhler, and some antibiotics, among other things, interfere with it. If the patient is taking nose drops, perhaps for the side effects of rauwolfia, the pressor amines and catecholamines are elevated, and we have found that jaundice will cause "false positive" catecholamines in some patients. But we think that "false positives," generally, represent fluorometric errors.

Dr. From: At the Mayo Clinic, in screening hypertensive patients, at what level above normal is it thought that further investigation of pheochromocytoma is indicated?

Dr. Gifford: You have asked about a technical detail that I lack information on. Dr. Maher has worked out a qualitative test, and the clinicians get either a positive or a negative report from him. When the report is positive, the readings have been in excess of twice what are regarded as the upper limit of normal. We have been fooled sometimes, but ordinarily we feel that pheochromocytoma patients have a three- or four-fold increase over normal.

DIAGNOSING OCCLUSION OF THE RENAL ARTERY

I should like to ask Dr. Fatland what he thinks is the best procedure for diagnosing occlusion of the renal artery.

John L. Fatland, M.D., Des Moines urologist: Investigation of the urinary tract offers many possibilities, and I think it behooves us to use as many of them as are necessary, trying the simplest and least formidable first. Occlusion or partial occlusion of the renal arterial tree can occur without remarkable changes in function, perhaps because of collateral circulation. On the other hand, I think that careful scrutiny perhaps will reveal clues that might be missed on a cursory examination of the intravenous urogram. Certainly one should use the intravenous urogram, but I don't know in what order to put the others.

On the West Coast, Winter and Goodwin have provoked some interest in the radioactive Diodrast roentgenogram. Just how much value it has, we really don't know at the moment. It's not a formidable procedure, however, and it may help to determine the vascular structure and integrity of the kidney. Next, there is retrograde pyelography. I think that we have had more experience with it. Then there are the estimation of renal function by sodium excretion, which has been described by Howard, and the procedures employing phenolsulfonphthalein and certain other elements.

About 20 years ago, Dr. Flocks wrote an excellent article reporting on the estimation of renal function and its relationship to renal mass suggesting the presence of renal ischemia.

Retrograde pyelography isn't fraught with the morbidity and dangers of arteriography, and it is probably the best procedure for actually visualizing the size and configuration of the kidney.

Dr. Gifford: If you had a patient in whom the radioisotope nephrogram showed definite diminution of the flow to one kidney but normal flow to the other, and in whom the Howard test was positive by your criteria—and I haven't asked you what your criteria are—would you be willing to operate without first getting an aortogram?

Dr. Fatland: I think I'd like to have an aortogram.

Dr. Gifford: Do you think that there cases in which it appears from the aortogram that the circulation is normal, but in which the Howard test or a radioisotope nephrogram might show some disparity in renal function?

Dr. Fatland: I think so. I think that there are documented cases of the loss of an accessory vessel to one pole of the kidney sufficient to produce enough ischemia for hypertension.

Dr. Gifford: That's right. From what we can see in the aortogram, we can call it normal, yet there can be ischemia due to occlusion of a collateral vessel or an accessory renal vessel that is producing hypertension.

Do you think that every hypertensive patient should have an investigation along these lines to rule out occlusion of the renal artery or an accessory renal artery?

Dr. Fatland: No, I should think it impracticable. As you have said, I think that patients in whom hypertension has occurred suddenly—certainly young people with hypertension—are deserving of renal-tract evaluation.

Dr. Gifford: Even if the excretory urogram is completely normal, you feel that any of these young patients or the ones who have experienced recent onset and have no family histories of hypertension should be investigated further?

Dr. Fatland: I certainly think so.

I'd like to bring up another diagnostic consideration, if I may. One often can get a tip-off regarding a renal artery abnormality, especially an aneurysm or a thrombosis that isn't completely occluding blood flow, simply by placing a stethoscope about the renal area both posteriorly and anteriorly and listening for bruits. If any are heard, then the aortogram is the next step to take in the diagnosis.

Dr. Gifford: I'm glad you brought that up. We have found that bruits are sometimes very prominent. Of course one doesn't hear them unless he listens for them routinely. On the other hand, however, the absence of bruits certainly doesn't rule out an occlusion of a renal artery.

In your experience, is 75 per cent a high figure for occlusion of a renal artery as the cause of hypertension?

Dr. Fatland: I can't answer that question from my own experience, but I can relate some figures from the literature. At the Cleveland Clinic, in a review of 337 hypertensive patients on whom aortography had been done, Poutasse reports that 93 had suggestions of kidney vascular system occlusion. Yes, though I don't know what criteria the Cleveland doctors used in doing aortograms on their patients, I'd say that 75 per cent is a rather high figure.

Dr. Gifford: I'd say that the Cleveland findings reflect about a 25 per cent incidence, and I'm sure that the criteria employed were similar to those that I have outlined. Dr. Poutasse says that any discrepancy in the pole-to-pole length of the kidneys greater than 0.5 cm. is significant, and he does an aortogram.

Rubin F. Flocks, M.D., professor and head of urology, SUI: Some years ago, we studied a group of youngsters with sudden onsets of hypertension, without histories and without any appearance of malignant fundus. We found that only a little over two per cent had renal disease probably underlying their hypertension. When we culled out those having the criteria that you have listed, Dr. Gifford, they constituted approximately 25 per cent of the group.

Our procedure consisted essentially of the technic that the panel has suggested here today—a plane film, an intravenous pyelogram. With regard to the intravenous, I might say that it is a good idea to take the first film in about three minutes and the second one in about five minutes after the injection of the dye, and to study them rather than the later ones. The later films may seem perfectly normal—that is, the same on both sides—but the earlier ones will give one an idea of the rapidity with which the blood is entering the kidney. Thus, for example, the first film may show good visualization on the right side and poor on the left, indicating that some lesion of the renal artery is impeding blood flow to the left kidney, though on a film taken 10 minutes later, when the kidney pelvis has filled up, both sides appear normal.

In 1939 we started a comparative study of segregated renal functions and pyelograms in 23 such patients. By means of bilateral ureteral catheterization, we were able to predict the presence or absence of hypertension and to decide upon unilateral nephrectomy by utilizing the relationships between renal mass and PSP-excretion over a 15-minute period. Howard later developed a similar test, and it has become very popular. It utilizes the volumes of urine and sodium excretion in the same way. Most of these tests are subject to error, however, in that there is leakage around the urethral catheters, and there are also some errors in the chemical laboratories so that the total picture must be considered before one decides upon nephrectomy or renal artery exploration in an effort to determine the cause of hypertension.

One of my associates, Dr. Culp, has been particularly interested in the radioactive renogram pioneered by Winter for the study of patients with hypertension. He has studied well over 150 such individuals and has been able to utilize the technic in conjunction with other methods for picking out those in whom unilateral renal disease is, or seems to be, the cause of hypertension. Our group has been doing approximately five or six of them a year, and we have been able to isolate a total of five or six such patients with renal ischemia as the primary cause of the hypertension. We utilize the technic of Poutasse for renal arteriography, and we have found that it spares us the complications of the older technics used by Clark, Smith and others.

Dr. Gifford: I should like the panel's opinions as to whether a patient with a segmental occlusion of one renal artery should have surgical correction or should be treated medically.

Dr. From: If the patient actually has an occlusion of the renal artery and does have hypertensive disease, I feel that in the long run it would be best to treat him surgically, if the occlusion can be by-passed or repaired completely. His hypertension could be taken care of medically for a while, but there would be the possibility of side

effects and an actual added expense involved in drug therapy. Thus I think that such a patient should at least be explored in an effort to correct the defect surgically.

Dr. Gifford: You prefer surgical management, Dr. From, and I note that the other panel members agree with you. Generally, I am an enthusiast for medical management myself, but the results have been good enough to date to warrant surgical correction of this type of lesion if it has been discovered. Certainly there isn't much point in looking for it if one isn't going to do anything about it.

ESTABLISHING THE DIAGNOSIS OF HYPERTENSION

Now, regarding the 90 per cent of hypertensive patients in whom extensive studies such as these fail to reveal a cause for their disease, and in whom we must resort to medical therapy. I should like to ask Dr. Schupp how he establishes that a patient indeed has hypertension.

Joseph G. Schupp, Jr., M.D., Des Moines internist: Of course there is a difference between high blood pressure and hypertension, and I think that the way to establish the presence of hypertension is to take blood pressures repeatedly. I feel that anyone who has a pressure of 160/100 mm. Hg *consistently* must be considered hypertensive.

Dr. Gifford: Just how many times would you like to take his blood pressure, and over how long a period?

Dr. Schupp: I don't believe in having a patient take his own blood pressure at home. Rather, I want to take the readings myself, in the office. If over a half-dozen determinations, separated by rest periods in the office, the patient continues to manifest pressures considerably above normal, I consider him to be a hypertensive.

Dr. From: I feel that three random blood pressures in excess of 160/90-100 mm. Hg are enough to establish hypertension in a patient below 60 years of age. One other way to go about the determination is to hospitalize the patient and let a technician take the blood pressures, although it has been said that the blood pressure may be higher when the doctor takes it than when a technician takes it. If after 48 hours of hospitalization the blood pressure level is still above 160/95 mm. Hg, I think he can be said to have hypertension.

Dr. Gifford: I like those figures 160/90-100 mm. Hg. They are the ones that I use. Certainly hypertension has to be diagnosed carefully. So many individuals—particularly young people—have elevated readings the first time they meet the doctor that several measurements are necessary. This phenomenon I prefer to call vascular hyperreactivity, and there is a question in my mind about whether these patients need treatment at all.

TREATMENT OF THE ASYMPTOMATIC HYPERTENSIVE PATIENT 45 YEARS OLD

Now let's suppose that we have a patient who does have hypertension. His blood pressure consistently is 110 mm., or thereabouts, diastolic. There is some narrowing and sclerosis of his retinal arterioles, but there are no exudates or hemorrhages. His renal function seems normal. His cardiac function seems normal. He has no symptoms. He is 45 years old. Would you treat him?

Dr. From: Yes, I would. Even though, in the main, I'd be treating a blood pressure reading, I'd do so, for one has to draw the line somewhere. We know that he has a vascular disease because of his hypertension, for there is some evidence of an arteriosclerotic process going on within his fundus.

Preferably within six months or a year, drug therapy might possibly reverse some mechanism so that his blood pressure would return to normal. Whether I would go on treating him would depend upon the particular findings in the case and upon the patient's emotional balance. First I would certainly get his weight down to normal. I would try to teach him the nature of the disease, and I would try to treat the overlying anxiety that many of these people have. Then, if I had been successful, I would come down to the problem of actually treating the hypertension.

Dr. Gifford: What drugs would you use?

Dr. From: I'd start with one of the diuretic agents. They are relatively new, although we have known for a long time that salt and hypertension are rather intimately connected. Exactly what this connection is, we are still not certain, but we know that there is one. Some of the chlorothiazide or hydrochlorothiazide derivatives, or benzydroflumethiazide (Naturetin), we know, must act somewhere in the region of the proximal tubule and can cause an outpouring of sodium in these people. It is true, especially with chlorothiazide or its derivatives, that the concentration of chloride, or in some cases the concentration of potassium, is raised, but at least the sodium goes out. We know that changes occur in the patients' extracellular volume, and that they respond much better in the long run to these than to any other hypotensive agent that can be added to their regimen. Thus, I think that the best thing for us to do is to start them on chlorothiazide or one of its derivatives. Specifically, one can prescribe Diuril in a dose of 0.5 Gm. every 12 hours, or early in the morning and late in the afternoon. Esidrix, which has a greater potency in proportion to weight, can be given in a dosage of 50 mg., and Naturetin can be given in a dosage of 5 mg.

I would give one of these drugs a one week's trial, and in some cases this medication alone might bring the patient's blood pressure to an essentially normal level. In the meantime, I'd have treated his underlying anxiety with some mild sedative such as Butapal or sodium amytal. If, at the end of this one week, he needed further drug therapy, I'd begin using one of the rauwolfia derivatives. Giving reserpine twice daily for a couple of weeks, and lowering the dosage as the blood

pressure fell, and then actually stopping the drug after three or four months might bring an end to the hypertension. If the combination of chlorothiazide and rauwolfia proved ineffective, I'd then go to apresoline or hydralazine, adding this drug in a step-by-step fashion up to a dosage of no more than 300 mg./day. Some doctors may think this dosage a little high, and it has been argued that no more than 150 mg./day should be given, but I have used apresoline a great number of times without seeing the lupus erythematosus syndrome occur.

If after one or two months of this therapy (actually, I'd be doing this at practically two-week intervals), I'd then go to one of the ganglionic blocking agents if this man still had hypertensive disease, and I'd prefer Inversine (mecamylamine hydrochloride). After six months or a year, if his blood pressure had fallen and was holding fairly well at normotensive levels, I'd try eliminating the drugs in reverse order, to see whether he could do without any drug therapy at all.

Dr. Gifford: Would you treat such a patient, Dr. Schupp, and if so, how would you proceed?

Dr. Schupp: Every group has its own method of treatment, and I think everyone uses the agents with which he is most familiar. I don't think one would have to resort to apresoline or the ganglionic blocking agents. The case of moderate hypertension that you have posed for us usually responds to moderate technics, and I would start out with the diuretics. If they didn't work, I'd then go to the rauwolfia compounds. I think they usually would work.

Dr. Gifford: My second choice after the thiazide would be apresoline, and I'd go to reserpine after that.

Dr. Schupp: For what reason?

Dr. Gifford: Chiefly because I believe the side effects of reserpine are more to be feared than the side effects of hydralazine. I refer mainly to depression. I have seen both reserpine depression and hydralazine lupus, and the former is the more disabling. If we keep the dosage of reserpine below 0.25 mg./day, we aren't likely to have trouble with depression. If we keep the dose of hydralazine below 300 mg./day, as Dr. From has said, we aren't likely to produce lupus. It is mainly because I think patients who are taking hydralazine suffer fewer side effects than do those using reserpine, my second choice. However, I have no great quarrel with anyone who chooses to reverse that order.

Unidentified questioner: How long a time would you allow to pass before changing medications?

Dr. Gifford: Well, that would depend upon how often the patient's blood pressure is taken. If the patient came in every day, I think a week would be long enough to show whether the medication were producing the desired effect. If the patient came in only once a week, I'd wait until I had taken three or four readings.

Questioner: Would you stick to Diuril?

Dr. Gifford: Yes, since there is no question that all these drugs are more effective if the patient is pretreated with a thiazide diuretic. I think that is unequivocal.

Dr. Schupp: How low do you seek to make the blood pressure fall?

Dr. Gifford: I like to get it to normal under ordinary circumstances. In a patient such as I described, I'd like to see the diastolic averaging 90 or less and the systolic averaging 140 mm. Hg or less.

Questioner: Do you restrict sodium?

Dr. Gifford: I reduce the patient's weight by putting him on a reducing diet, but I don't restrict sodium unless there is complicating congestive heart failure. What do you do about diet, Dr. Schupp?

Dr. Schupp: Well, I have a patient in the hospital now who had been on diuretics and developed generalized edema, with a consequent rise in blood pressure, after eating a bag of popcorn. Thus, I don't think there is any doubt that patients can cancel quite a bit of the effect of diuretics by overloading themselves with salt.

Dr. Gifford: With normal kidney and heart function, I think the average person will be able to tolerate a normal amount of sodium.

TREATMENT OF A MORE SEVERELY HYPERTENSIVE PATIENT

Now let's pose a different sort of problem. Let's take the same patient, 45 years old and without any complications or symptoms, but let's suppose that his diastolic pressure averages 140 mm. Hg, and that the fundus shows more narrowing and some intense focal constrictions of the arterioles and a few exudates. How do you start treatment, Dr. From?

Dr. From: The patient's diastolic pressure is now at a more dangerous level. In such a case, one worries about the possibility of cerebral hemorrhage, about whether heart failure may be imminent and about what may be going on in the renal arterioles. In any event, however, we might as well get the blood pressure down to normal levels as fast as possible.

I would use intramuscular rauwolfia. I think it has been adequately demonstrated that parenteral reserpine will lower blood pressure adequately. Admittedly, it has a lag effect, and if one fails to keep that fact in mind, he may pile up a great deal of the drug within the patient's body and suddenly get tremendous effects. There will also be very important side effects such as depression and a Parkinsonian stage. I'd start off with a 5 mg. dose, usually intramuscularly but occasionally intravenously. If this didn't bring the blood pressure down within a two- or three-hour period—and certainly if a second dose didn't bring it down—I'd then go directly to a ganglionic blocking agent, intravenously. These ganglionic blocking agents produce an orthostatic hypotension, and in

order to get the maximal benefit, we must elevate the head of the patient's bed a good 10 inches.

Hexamethonium (Bistrium) can be given intravenously without any difficulty at all. Occasionally one can use parenteral apresoline, and there are various other agents that can be used in various hypertensive emergencies, but in the few cases that I have encountered, reserpine intramuscularly has brought the blood pressure down quite satisfactorily.

Dr. Gifford: I assume, then, that you would hospitalize any patient whose diastolic pressure was 140 mm. Hg or greater, even though he had no symptoms or complications.

Dr. From: No, I said that if there were any possibility, from a clinical standpoint, that a hypertensive crisis was occurring, I'd certainly want to get the blood pressure down to normal as quickly as possible. If the patient had walked into my office, and if there was no evidence that a catastrophe was imminent, I'd try treating him at home. I surely wouldn't use intramuscular reserpine without hospitalizing him, however.

Dr. Schupp, what would be your regimen in a situation like that?

Dr. Schupp: Even though the patient were apparently well, I'd hospitalize him, for I think 140 mm. Hg is critical, and if something is about to happen, the patient should be in the hospital. Second, I'd prime him with a diuretic. Then I'd put him on a ganglionic blocking agent. I wouldn't use an intravenous ganglionic blocking agent for this type of patient, however. I'd use it only on a patient in a so-called hypertensive crisis.

Dr. Gifford: You'd go directly, then, from the thiazide diuretic to a ganglionic blocking agent without trying reserpine or hydralazine?

Dr. Schupp: With a diastolic pressure of 140 mm. Hg, I'd prime the patient for the first two or three days with diuretics.

Dr. Gifford: I agree with you on that point. It has been my experience that when the diastolic pressure starts out at 140 mm. Hg or more, the chances of its responding to thiazide, hydralazine and reserpine are just about nil. I'd use the thiazide diuretic and treat the individual on an outpatient basis, unless there were symptoms of impending failure or hypertensive encephalopathy. I believe I'd then go directly to a ganglion blocking agent or to the new Ciba preparation Ismelin (guanethidine), a sympathetic-inhibiting drug which I have found to be very effective in these severe cases.

Dr. From: I have used Ismelin orally, and I think it an extremely effective drug. It has one singular advantage in that the patient knows immediately when it is getting him into trouble. An overdose produces diarrhea. With the older drugs such as hexamethonium and Ansolysen, constipation usually was a very great problem, and in fact cathartics or enemas had to be prescribed with them so that the patient could evacuate each previous day's dose.

THE ANTIHYPERTENSIVE TO TAKE TO A DESERT ISLAND

Dr. Gifford: If you were to choose one and only one antihypertensive agent to take with you to the proverbial desert island, which one would you take.

Dr. From: I'd take an oral diuretic.

Dr. Schupp: I think I'd take hydralazine.

Dr. Gifford: Now, suppose you were permitted to choose two.

Dr. From: I'd take an oral diuretic plus a ganglionic blocking agent. As far as we know today, hypertension can be blamed upon some anatomic imbalance associated with vasoconstriction, and a ganglionic blocker can at least break through that cycle pretty well.

Dr. Schupp: In addition to my first choice, I'd take chlorothiazide because of its potentiating effect.

Dr. Flocks: Many years ago it was supposed that a sympathectomy constituted the procedure of choice. Can you say something on that subject?

Dr. Gifford: Well, we quit doing sympathectomies at the Mayo Clinic in about 1953, with the advent of the new drugs. Previously, we had done an average of 250 to 300 of them each year, but since then I doubt that we have done as many as 25 all together. Now, we feel that antihypertensive therapy is superior, though I'd hate to have to defend that position against Dr. Smithwick. It's certain, at least, that one would have a hard time convincing a patient that he needed major surgery when friends of his with the same diagnosis were all taking hypotensive drugs.

TREATMENT FOR THE SPECTACULARLY SEVERE HYPERTENSIVE

Now, if the patient had a group IV fundus, a diastolic pressure of 150 mm. Hg, and no symptoms or complications, what would be your program of treatment?

Dr. From: I would always use the oral diuretic as the basis of my total therapy. Certainly in this case I'd use a ganglionic blocking agent. I feel, as many others do, that if these drugs have undesirable side effects, the dangers that they pose are proportional to the sizes of dose administered. If we use all of the drugs, we can get by with smaller doses of each, getting the blood pressure down and avoiding the undesirable side effects. I prefer to use single tablets of each drug, incidentally, rather than tablets containing combinations of drugs, since I think the former technic gives one a better control of the situation.

Dr. Schupp: I would use the ganglionic blocking agents, and I'd use them intravenously.

Dr. Fatland: Drs. Hutchinson and Evans, of the Lahey Clinic, have recently published an article entitled "Should Sympathectomy Be Abandoned?" and one of the questions that they have asked is whether, in the case of a young patient, one should ever consider offering or suggesting sympathec-

tomy in preference to a long and tedious drug therapy. What would be your answer?

Dr. Gifford: I'd advise surgery only if the blood pressure couldn't be controlled adequately by tolerable doses of medication, or if the patient were unwilling to cooperate in the drug program.

Dr. Schupp: When there is a severe renal involvement, how low are you willing to take the blood pressure?

Dr. Gifford: I'd take it down very gradually until the blood urea nitrogen, or whatever one is measuring, starts going up.

Dr. Schupp: And how about the cerebral symptoms?

Dr. Gifford: If cerebral vascular insufficiency recurs intermittently, I prefer that the patient should remain for some time on long-term anticoagulant therapy. Then, when I finally begin tampering with the blood pressure, I take it down gradually, watching the patient's symptoms with great care.

Dr. Schupp: Some authorities maintain that one should take the blood pressure down before giving the patient long-term anticoagulant therapy.

Dr. Gifford: I don't have that much courage.

Dr. Schupp: Then there are other authorities who feel one shouldn't take the blood pressure down.

Dr. Gifford: My system has been fairly satisfactory, and it is the one that I prefer. I'd dread taking the blood pressure down if the patient weren't protected by means of anticoagulant therapy. Now if a patient had a history of a stroke five years ago, and had no residual, then I'd treat his high blood pressure less cautiously and without anticoagulant therapy unless symptoms of cerebral vascular insufficiency ensued.

Dr. Schupp: In your formal paper, Dr. Gifford, you mentioned some instances in which surgery disproved a clinical diagnosis of pheochromocytoma. How frequent have they been?

Dr. Gifford: I'd guess that we've had 10 per cent negative explorations.

Dr. Schupp: And do you feel that there might be tissue other places in the body that you might have missed?

Dr. Gifford: Well, we've thought so in some instances, but we have never proved it.

An Organic Theory of Mental Illness

Dr. W. J. Fessel, of the University of California at San Francisco, has offered an organic theory of mental illness in the February issue of ARCHIVES OF GENERAL PSYCHIATRY. Although he says that the evidence is "admittedly slim," such a theory could explain some of the many biochemical abnormalities of the blood that have been discovered in the mentally ill. He does not suggest, however, that all types of mental illness may have this physiologic origin.

Reviewing developments in the past 10 years, Dr. Fessel says that there is a large body of scientific evidence that blood-protein abnormalities occur in the mentally ill. These include an elevation of certain globulins, a class of proteins which are largely antibodies, and some studies have shown that protein substances can cause a behavioral disturbance in man.

Dr. Fessel says he himself recently confirmed the presence of a significant elevation of the class S19 microglobulins in persons with so-called functional acute mental disturbances, in comparison with a group of unselected blood donors. The presence of these macroglobulins, which often have antibody-like activity, may imply an autoimmune factor in the chain of events leading to the mental disturbance, he thinks.

As to why antibodies attack an individual's own cerebral material, Dr. Fessel speculates that certain components of the nervous system, because of their relatively late development before birth, may not be recognized by the body's immunity mechanism as "self," but are reacted to as "foreign." Further support for the autoimmune theory is found in studies that have revealed an abnormal immunity response to various vaccines among mental patients.

"The idea that autoimmunization is a factor in the genesis of some functional psychoses might be thought naive in view of all that is known about the importance of other, e.g., psychosocial and genetic, factors in their causation," Dr. Fessel concludes. "Yet such is the complexity of interplay between cause and effect that these various mechanisms may be interdependent, the final clinical expression being the delicately balanced resultant of them all."

The Significance of Pain in the Diagnosis of Spinal Lesions

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Pain is probably the most common and predominant initial symptom of pathological processes involving the spinal column and the meninges of the spinal cord. The patient may have pain for days, weeks, months or years, before developing obvious signs localizing the pathological process to one or another segment of the spinal column or spinal cord.

Pain in the back of the head, the neck, the shoulders and the upper extremities is an early symptom of a lesion involving the cervical spine. In lesions of the thoracic spine, it is commonly in the interscapular region. It involves the chest, the back, the costovertebral angles and various parts of the abdomen. In lesions occurring in the lumbar portion of the spine, the pain is most frequent in the low back, and radiates into one or both lower extremities and into the scrotum, the anus or the vulva.

The pain is usually aggravated by coughing, sneezing, laughing, screaming, bending forward or changing position. It usually occurs in attacks that last from a few minutes to half an hour, and these attacks may occur many times during the day, depending upon the occupation and the posture of the patient. Pain is often present at night, or may be aggravated by resting on the back. With severe back pain, the patient may walk in a stooped position. He may hold his head and neck stiff and extended. The pain may be so intense as to waken the patient from his sleep or keep him from lying down at night, or to keep a child from playing or from eating. It may be so intense as to require morphine for its relief.

The pain may appear, disappear and recur, depending entirely upon the mechanical change in position which either the patient or the lesion may undergo. Pain arising from the spine may simulate appendicitis, gallstones, renal calculi, pleurisy, myocardial ischemia, gastrointestinal tract ulcers, etc. The back pain may be interpreted as unwillingness to go to school or to do chores, in children; as overwork or premenstrual tension, in housewives; and as laziness, psychoneurosis or malingering in otherwise healthy-appearing males.

I should like to present a series of short case histories where pain was the initial and the predominant symptom. In many cases where no neurologic deficit was present, or where other disturbances on physical examination were absent, intensive search for the cause of pain finally revealed the nature of the disease and led to its treatment. Pain caused by trauma, osteoarthritic changes and degenerated or protruding intervertebral discs will not be discussed in this presentation.

INTRADURAL TUMORS AND CYSTS

Case 1. An 8-year-old boy had experienced low back pain off and on for a period of three years. Because of this pain he had held his back stiff, and while playing had always tried to protect the lower portion of his back. In recent months, his back pain had become worse. It was most severe when he was trying to get up from the floor. He then had to take hold of surrounding objects in order to get up. He described his discomfort as a rather vague, aching pain involving especially the midline of the lower back. He walked stooped forward.

Examination revealed no neurologic deficit, but the paravertebral muscles were tight. A partial subarachnoid block was found at myelography, and a dermoid tumor was removed from the region of the 4th lumbar subarachnoid space (Figure 1). The tumor, measuring 3 x 1.5 x 1.5 cm., had compressed the cauda equina. The boy was free of pain following the removal of the tumor.

Case 2. A 10-year-old boy had an eight-month history of left hip pain. His pain was worse in the morning, and better after he had moved around. His pain was intermittent. He suffered for two or three days and then was free of pain for two or three days. One month before we saw him he had hit a wire in his back yard in the dark, and had fallen. His back had become stiff. The pain in his left hip had increased. He refused to bend forward to protect the left hip, and for the past month had remained in bed. He refused to go to school or to play. The pain was aggravated when he stood, walked or sat. It was aggravated by laughing.

On examination, he had positive Lasegue and Kernig signs bilaterally, but no obvious neurologic deficits. Spinal fluid studies were normal, but mye-

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lography revealed a block at the 3rd lumbar vertebral level, and at operation a dermoid cyst was removed. The cyst measured 4 x 2 x 2 cm. and had compressed the cauda equina. The patient has been entirely free of pain since operation.

Case 3. A 13-year-old boy gave a six-year history of occasional pains in his lower back. He could not bend his back because of pain. The pain was aggravated when he sat or rode in an automobile, or whenever some bending was involved. During the past four years he had also had radiating pain in his arms and especially in his legs. He was treated with cortisone without improvement. He then developed frequent charley-horses in the thighs and calves, especially at night. Finally, three and a half years ago, his pain lessened, but then he developed weakness in both legs. However, his cramps continued. One year ago he became incontinent and became undernourished. At operation we removed a dermoid tumor that was compressing the cauda equina and the conus medullaris from the 1st to the 3rd lumbar vertebra. Unfortunately, at the time of operation he had become incontinent, and he has remained incontinent since.

Case 4. A 15-year-old girl for 11 years had ached in her legs and buttocks. She had no memory of freedom from pain. The most severe pain was in her left lower extremity and at times it was so unbearable that she couldn't sleep, and she remained up all night. Seven months ago she developed low back pain. One month ago she had increased pain in her left hip. She had pain on the external aspects of her left hip, knee, calf, dorsum of her left foot, and also along the course of her sciatic nerve. Her pain was worse when she put her weight on her left lower extremity. The pain would last for seconds only, but it recurred at frequent intervals. She was unable to stand straight because of her back pain, and she stooped forward as she walked. The parents had noted a scoliosis five or six years ago, and at the time I first saw the patient she had weakness and sensory disturbances in both lower extremities. At operation multiple neurofibromas were removed from her lumbosacral canal (Figure 2). The tumors

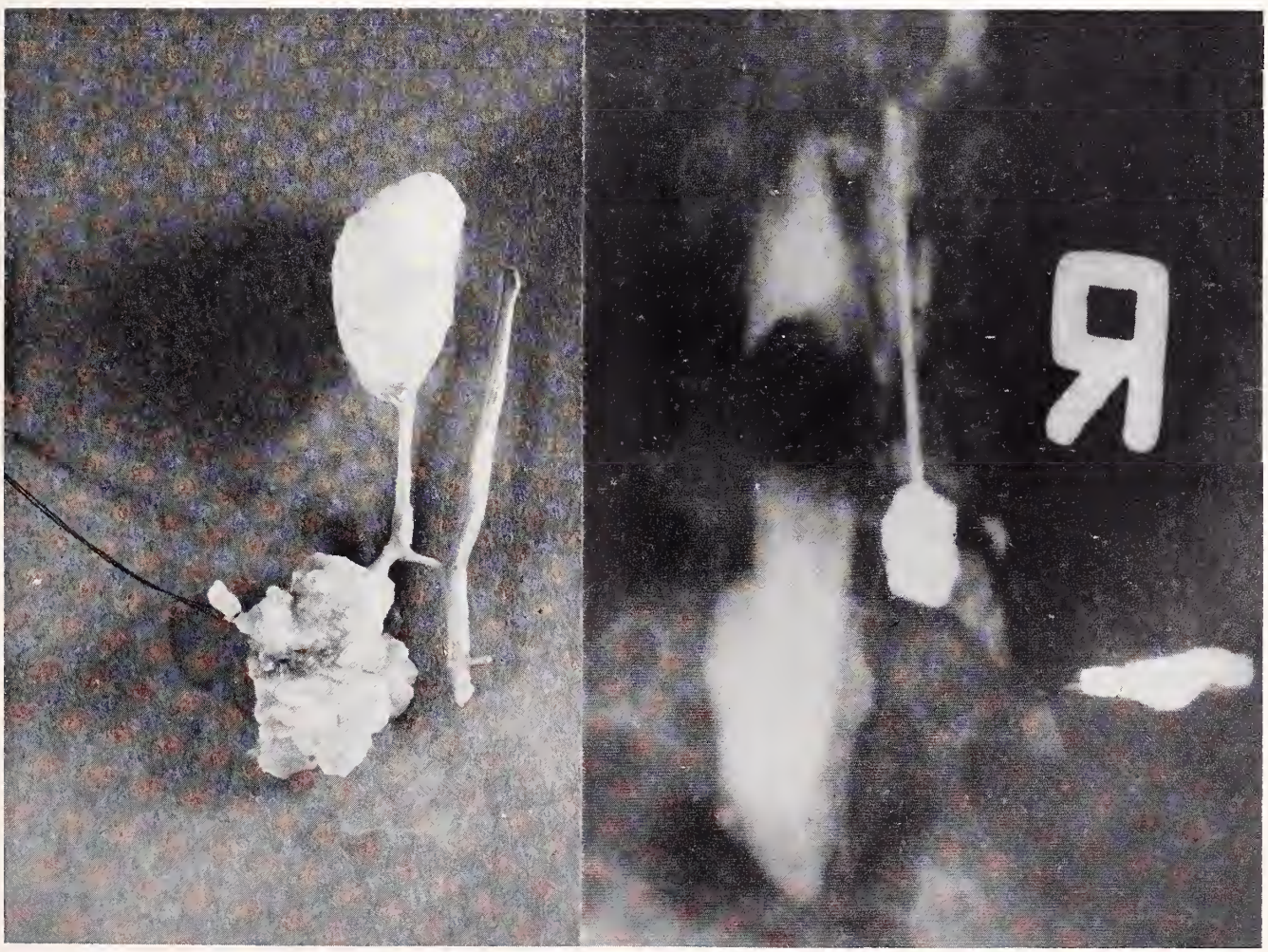

Figure 1. Left: Dermoid tumor after its removal from the cauda equina. The black thread is attached to the dermal sinus found in the subcutaneous tissue. This sinus leads to the extradural portion of the tumor, which is connected through another sinus to the intradural portion of the tumor. Both intra- and extra-dural portions of the dermoid are connected to the filum terminale by a large blood vessel.

Right: Myelographic defect of the intradural portion of the tumor at the 4th lumbar vertebral level.

weighed 123 Gm. Since the removal of these tumors, the patient has been completely free of pain.

Case 5. This patient is a 16-year-old boy in whom, four years ago, we diagnosed and explored a medulloblastoma of the cerebellum, following which he received x-ray therapy and was symptom-free. Two months ago, while working at a service station, he developed pain in the posterior aspect of both lower extremities. This pain was increased by bending. He also had a tight feeling in the lower back. The pain was aggravated by coughing and sneezing. The neurologic examination was essentially negative. Myelography of his spine was performed because of his pain, and we found a complete block at the level of the 4th lumbar intervertebral disc space (Figure 3). The spinal fluid contained medulloblastoma cells. We thought then that he had a metastasis from his original cerebellar tumor in the tip of his cauda equina, and he was given x-ray therapy. The boy was already free of symptoms after the second x-ray treatment.

Case 6. A 17-year-old girl gave a six-month history of mid- and lower-thoracic pain which was non-radiating in character. Neurologic examination and spinal fluid studies were normal. She was seen at monthly intervals, always complaining of midback pain, especially at the end of the day when she was tired. Finally, eight months after we first saw her, or 14 months after the onset of her pain, she was admitted to the hospital. She stated that two weeks prior to that time, for three days, she had had sharp, stabbing pains in the interscapular region, which was also tender to touch. Coughing and sneezing did not increase the pain. Breathing did not cause pain, but movement of the shoulders did. Physical examination again was entirely negative. However, roentgenograms of the thoracic spine revealed an increase in the interpedicular distances of the 6th, 7th, 8th and 9th dorsal vertebrae. On that basis mylography was carried out. An ovoid structure filled with dye was demonstrated when the patient was in supine position; it persisted in the upright position (Figure 4). At operation, an arachnoid cyst at the level of the bodies of the 7th and 8th dorsal vertebrae was encountered and removed, and the patient has been free of pain since then.

Case 7. A 5-year-old girl had a history of intermittent low back pain for six weeks. She also had had pain over the anterolateral aspect of the left thigh for the same period of time. The parents reported that during a period of pain lasting several days, the child had not cared to play or walk, but had remained in bed most of the time. At other times, however, she had been free of pain, and had had no difficulty in walking or

Figure 2. Left: Lateral view of the lumbar spine demonstrates the scalloping of the anterior aspect of the spinal canal produced by the erosion of the posterior aspect of the vertebral bodies by the tumors.

Right: Multiple neurofibromas removed from the roots of the cauda equina.

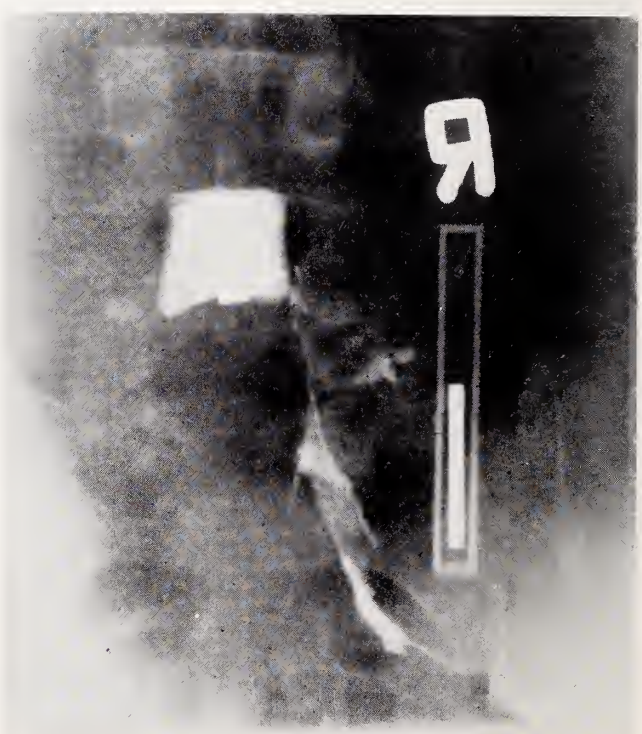

Figure 3. Myelographic block at the upper level of the 5th lumbar vertebra produced by a medulloblastoma metastasis filling the bottom of the lumbosacral arachnoid sac. On the right side, dye has escaped along lumbar and sacral nerve root sleeves.

playing. Except for an area of hypertrichosis in the lower lumbar region, examination was essentially normal. On palpation, she had pain over the lower lumbar and upper sacral spine. When bending forward, she would not move her lumbar spine and would keep it in the lordotic position, and the paravertebral muscles were tense. Roentgenograms revealed a widening of the entire lumbar canal, and were suggestive of a diastematomyelia. The child was seen again three months later and she had had no more pain and no further neurologic deficits. However, one year later the girl complained again of low back pain occurring during the day, and occasionally the pain would wake her up during the night. She also had occasional pain in the left leg. The parents noted that the child did not stoop, but would squat down to pick up objects from the floor. On examination, straight leg raising also produced pain. Myelography revealed a complete block at the level of the 3rd lumbar vertebra and another small midline defect at the level of the 4th lumbar vertebra. At operation, a large arachnoid cyst was encountered compressing the lumbar cord, together with diastematomyelia which split the cord below the cyst. The bone spicule and the cyst were removed, and the child has been free of pain since that time.

EPIDURAL ABSCESSES

Case 8. A 13-year-old boy had fallen from a tree ten days earlier, and two days after the fall had had pain in the coccygeal region, swelling of the right ankle and severe low back pain. On examination, we could only find spasms of the back muscles. When spinal puncture was attempted, pus was encountered before the needle penetrated into the lumbar subarachnoid space. At operation, we found an abscess, paraspinal and extradural, mostly on the right side, in the lower lumbar and sacral region. Drainage of this abscess freed the patient of his pain.

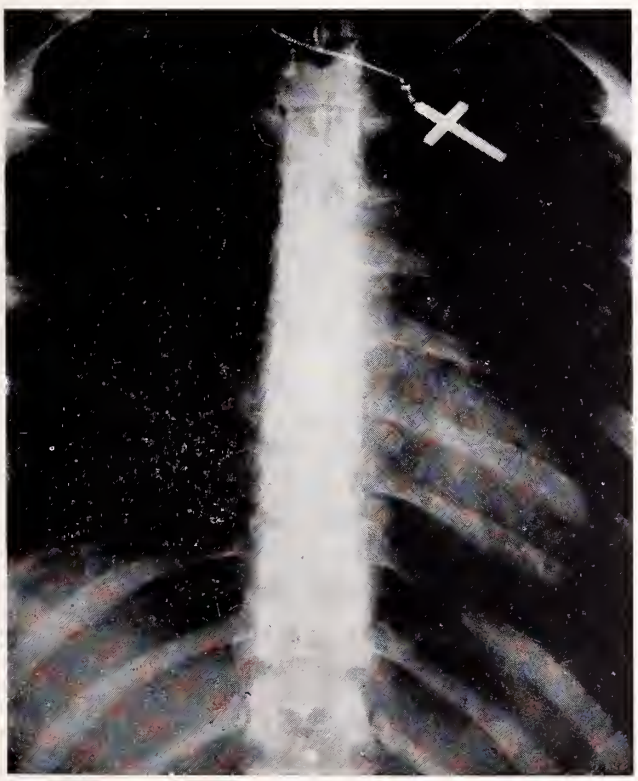

Figure 4. Arachnoid cyst of the septum posticum filled with pantopaque overlying the bodies of the 7th and 8th dorsal vertebrae. This roentgenogram was taken after myelography with the patient in standing position.

Case 9. A 15-year-old boy had fallen ten feet from a tree six weeks before we saw him. The only immediately obvious injury had been a sprained ankle, but two weeks later he experienced back discomfort in the mid-dorsal region. The pain seemed to be worse at night and obliged him at times to walk the floor. The pain gradually increased, and he found relief only by standing with his back against the wall. Pain at the onset was gradual. It was increased by riding in a car, it was associated with pain along the lower ribs on both sides, and it was aggravated by lying down. During the final week before we saw him, his pain had increased in severity, and then he had developed numbness and weakness in both legs.

When myelography was performed, we found a spinal fluid block at the 7th thoracic level, and at operation an epidural abscess was found, extending from the 7th to the 12th thoracic vertebra. His pain was relieved by the evacuation of the abscess, and his paraparesis disappeared.

Case 10. A 38-year-old truck driver stated that 14 days earlier he had had an attack of right upper quadrantic abdominal pain that radiated to the interscapular region. His pain had lasted for half an hour. During the ensuing days he had had several more attacks of pain. Five days later his local physician examined him for gallbladder disease, but both gallbladder and gastrointestinal tract studies were negative. The pain persisted, and it was constant and localized mostly in the interscapular region. It was so intense that the patient had to remain in a sitting position, and was able to lie neither on his back nor on either side in bed. Sneezing, swallowing and coughing aggravated his pain. He also had marked tenderness over his spine between the scapulae, and once fell because of pain when his physician had touched him in that area. Two days before we saw him he had developed numbness and weakness in his legs, and loss of control of bladder and bowels. He had no fever.

Examination revealed sensory loss below the 1st lumbar dermatome. There was complete block on spinal fluid studies. Because of his exquisite tenderness in the mid-dorsal region, a laminectomy was performed and an abscess was evacuated from the epidural space between the 4th and the 7th dorsal vertebra. He was relieved of his pain, and he gradually improved from his paraparesis.

Case 11. A 45-year-old woman had a long history of diabetes mellitus. She gave a two-week history

of feeling what she interpreted as "gas pain in the stomach." This had been followed by pain between the shoulder blades. The pain had been so intolerable that she couldn't continue working. She had then developed abdominal pain radiating to both costovertebral angles, and occasionally to the groin. The local physician had hospitalized her with a diagnosis of kidney infection. He found sugar in the urine. The pain subsided while she was in the hospital, but recurred in the costovertebral area as soon as she had been discharged. She developed more right lower quadrant pain and marked tenderness in both costovertebral angles. The back pain was aggravated by motion and was relieved when she was flat in bed.

When she was examined here, she had tenderness over the lumbodorsal spine and restricted motion of the spine. Most tenderness was present over the 8th, 9th and 10th dorsal vertebrae. She also had a constant fever and a positive Kernig's sign. On the twenty-fourth day of hospitalization, examination revealed a hypalgesic band around the trunk in the 7th to the 9th dorsal dermatomes. Spinal-fluid findings were normal. On the twenty-ninth day, a dorsal subarachnoid block was found at myelography. In the meantime, the patient had had a number of x-ray examinations. Films of the cervical, dorsal and lumbar spine revealed degenerative joint disease. Roentgenograms of the chest were normal. Intravenous pyelograms were normal. Cholecystograms were normal. The stomach and the duodenum were reported normal. The colon was normal. Finally, we had a positive myelogram, and at operation an epidural abscess was found between the 5th and the 8th thoracic vertebra. This abscess seemed to arise from the 7th dorsal intervertebral space. Later the body of the 7th dorsal vertebra collapsed and a gibbus developed. The diagnosis was epidural abscess secondary to osteomyelitis.

VERTEBRAL TUMORS

Case 12. A 10-year-old boy had had severe pain in the middle of his neck for eight months. This pain radiated into his right little finger. He carried his head flexed to the right to protect his neck against pain. The pain woke him up at least once a night and was relieved by aspirin. He even took aspirin to school with him. His local physician thought he was dealing with a torticollis, and cut the boy's right sternomastoid muscle proximally and distally, but this did not end his pain. He gradually stiffened his neck more and more in order to guard against motion, particularly extension and rotation. The pain could be reproduced by pressure over the mid-cervical area, by rotation of the neck to the right, and by extension and flexion of the head to the right.

The neurological examination was essentially normal. Cervical roentgenograms revealed a small mass in the lateral aspect of the right side of the 4th cervical vertebra. At operation, an osteoid osteoma was removed from the vertebra, and the patient has been asymptomatic since.

Case 13. A 14-year-old girl had had upper back pain for two and a half months. Her pain was not very severe, but was gnawing and lasted for two weeks. One month ago she developed a recurrence of back pain, with tightness of her back, and one week ago weakness and spasticity in her lower extremities. Roentgenograms suggested a destructive process involving the posterior arch of the 3rd dorsal vertebra, and the myelograms revealed a subarachnoid block at the inferior border of the 4th dorsal vertebra. At operation, we found a tumor involving the bone, the dura and the surrounding muscles between the 2nd and the 4th dorsal vertebra. This tumor was diagnosed by some as a giant cell tumor, and by others as an osteogenic fibroma. Four months after discharge from the hospital the patient was free of pain but still had a spastic paraparesis.

Case 14. An 11-year-old girl, for six weeks, had had pain in the upper dorsal region and between the scapulae. This pain was present usually only on anterior flexion of the neck. Three weeks before we saw her she had developed weakness in both lower extremities. X-ray films of the dorsal spine showed an abnormal formation of bone on the right side of the upper dorsal vertebrae (Figure 5). At operation we found an osteoblastic lesion involving the 4th and 5th dorsal vertebrae, which was diagnosed as an osteochondroma. When last seen, the girl was asymptomatic and leading a normal life.

Case 15. A 59-year-old county superintendent of

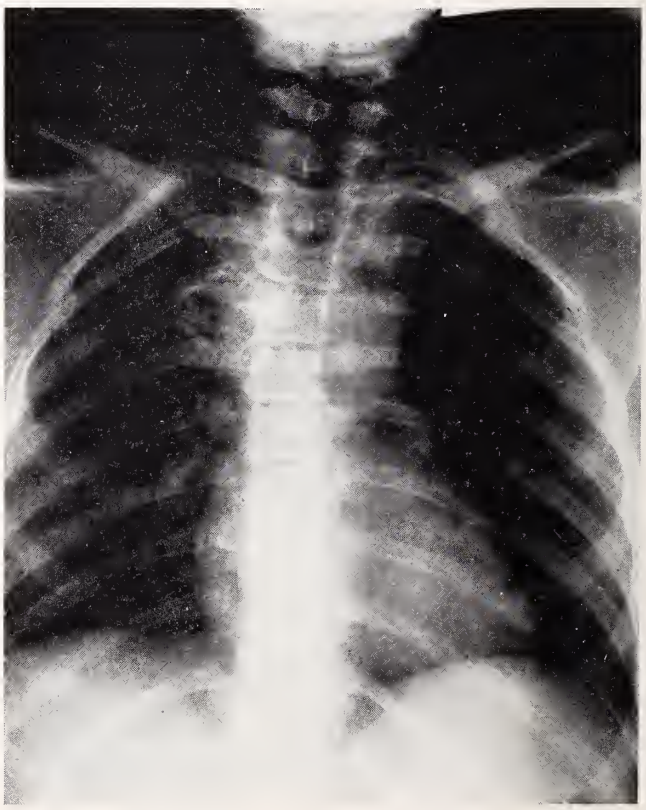

Figure 5. Roentgenogram of the thoracic spine showing changes produced by osteochondroma arising on the right side of the 4th and 5th dorsal vertebrae.

schools had had intermittent pain in the lower portion of her back for the past fifteen years. Her pain sometimes radiated into the lower extremities, and was also relieved by frequent osteopathic treatments. Two months before we saw her she finally developed sensory disturbances in both lower extremities. A central myelographic defect was present between the 12th dorsal and the 1st lumbar vertebra (Figure 6), and at operation an enchondroma was encountered on the anterior aspect of the spinal canal arising from the intervertebral disc and the surrounding bone. The patient was free of pain when discharged from the hospital.

Case 16. The last case is that of a 70-year-old woman who had been operated upon four years earlier for a rectal carcinoma. One year ago she developed pain in the sacral region and in both lower extremities. She was unable to walk because of pain, and she was unable to sleep. Roentgenograms revealed destruction of the sacrum and the 5th lumbar vertebra. This was thought to have been caused by carcinomatous metastases, and the patient's previously intractable pain was relieved completely by a bilateral anterolateral cordotomy.

CONCLUSION

I could go on enumerating many more cases of tumors, abscesses and metastases, involving the cauda equina, the spinal dura mater, the epidural space, and the vertebral bony structures. Back pain must be taken seriously. Several of the patients in the cited cases could have been cured before they developed paralysis, sensory disturbances and loss of sphincter control, if more attention had been paid to their pain.

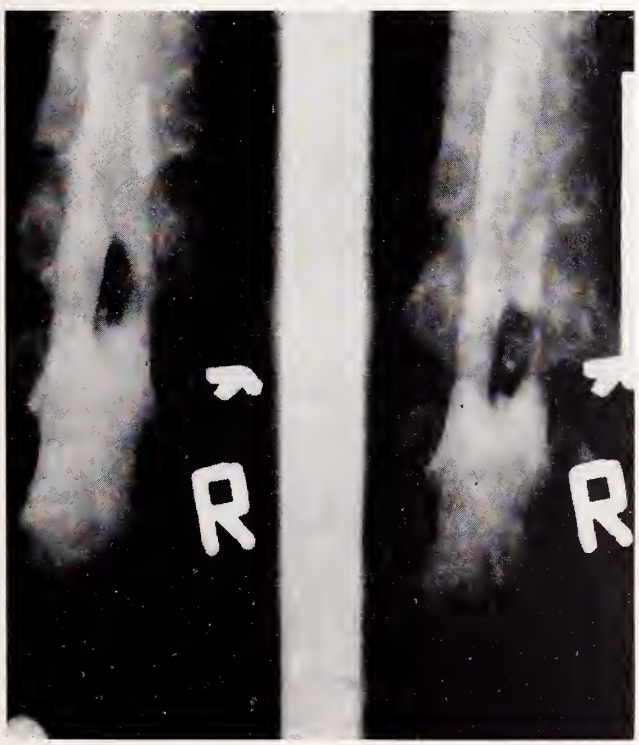

Figure 6. Midline defect seen in the myelogram at the level of the 12th dorsal vertebra. This defect was produced by an enchondroma arising on the anterior aspect of the spinal canal.

Back pain in children is uncommon but, when present, is highly suggestive of an underlying pathologic process, usually a benign tumor. Epidural abscess starts with acute severe back pain which develops suddenly, which may or may not be connected with a previous infection, and which rapidly results in severe signs of spinal cord compression or softening. These are more common in adults, young or middle-aged. In contrast, the back pains that develop in older people are commonly the result of metastatic involvement of the vertebrae or of the para- or intra-spinal tissues.

The pain created by destructive lesions from metastatic tumors is best treated by unilateral or bilateral cordotomy, whereas the pain of primary spinal tumor or infection is best treated by early removal of the lesion.

Intramedullary tumors rarely give rise to pain. However, such cases have been reported in the literature. Even syringomyelia has been known occasionally to produce pain.

It is important that the diagnosis of a spinal lesion be made before the development of paraparesis, paraplegia, quadriplegia, or loss of bladder and bowel control. The following are points that can be helpful in arriving at the diagnosis:

1. An investigation of the history of pain and its previous treatment.
2. An examination of the posture of the patient to determine whether kyphosis, lordosis or scoliosis is present.
3. Discovery of muscle spasms in the paravertebral region, and points of tenderness on palpation of the spine.
4. Detection of disturbances in gait.
5. Disturbances in motion of the spine, or pain on moving the spine forward, backward, or to either side, or on rotation.
6. Increase in pain on stretching the nerve roots or spinal cord, by motion of the spine or the extremities. I refer to the Kernig and Lasegue tests, and anterior flexion of the neck.
7. A careful study of the area of referred pain, remembering that it might be dermatomal, pointing to a certain localization within the spinal canal.
8. Careful neurologic examination, with special attention being drawn to areas of possible numbness, tingling or burning.
9. Careful interpretations of roentgenograms of the spine taken in various positions or in various planes. Spine films should be taken in antero-posterior or postero-anterior positions, in lateral positions, in oblique positions, in flexion and in extension of the spine.
10. Carefully performed spinal fluid studies, with manometric pressure readings, determination of a partial or complete block by Queckenstedt's maneuver, and studies of the spinal fluid cells and protein, and occasionally sugar and culture.
11. Finally, when one suspects an intraspinal lesion, myelographic studies.

Bone Physiology

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In recent years, basic investigations into the nature and function of bone have been accelerated, and as a result of an increase of interest and of the development of improved research tools, a clearer concept of the physiology of bone has begun to emerge.

Considered as a tissue, bone is a complex combination of inorganic and organic materials organized to support the body, to provide for growth and to serve as a mineral reservoir.

CHEMISTRY OF BONE

The inorganic fraction of bone is a crystalline substance that belongs to the "hydroxyapatite" group of compounds—ones having similar ionic arrangements for which the prototype is $Ca_{10}(PO_4)_6(OH)_2$. The average crystal is a rod-shaped structure roughly 50 Ångstrom units in diameter, and of indeterminate length. The internal structure of the crystal is an arrangement of ions in a three-dimensional lattice. Reducing the ratio of the constituent ions to the smallest whole number defines the "unit cell," and it is the organization of these cells that forms the crystal.

Actually, not all unit cells are identical in composition, for substitution of ions may occur within the cell, and impurities may be included between the units as the bone crystal forms. Consequently, bone salt is not a homogeneous material, and attempts to characterize its exact chemical composition have led to much confusion in the past. The major ions are calcium and phosphorus, in a ratio of 1.5 to 1. Additional ions of sodium, potassium, manganese, carbonate, citrate, chloride and fluoride are consistently present, but in varying amounts.

Because of the small size of the crystals, from one half to two thirds of the unit cells are on the surface of the crystal, giving an extremely large surface area in proportion to mass. The skeleton of a 150-pound man has about 100 acres of crystal surface.

Each crystal is surrounded by fluid, which provides for extensive ionic interchange. The crystal surface is continuous with a tightly bound layer of hydrated ions, and external to that is a more loosely held layer of water. This "hydration shell" is so tightly bound to the crystal that it cannot be removed by drying at 100°C. The volume of the hydration shell may be greater than that of the crystal itself, and provides the medium through which ions penetrate from the body fluids and are incorporated into the crystal.

The organic component of bone makes up 35 per cent of the dry fat free weight, and is composed of collagen and ground substance. The collagen of bone accounts for 90 to 95 per cent of the organic fraction, and is similar to collagen from other sources. Specifically, it is an organization of macromolecules, each consisting of three polypeptide chains, and the result is a fibrillar material with a high degree of structural regularity. The fibrils are of indeterminate length, with double cross banding at 640 Å intervals. Collagen is soluble in dilute acid, and can be reconstituted into its original form. It is now thought that the collagen plays an important part in initiating crystal formation. During this process, crystals form on and within the collagen, with their long axes parallel to the axis of the collagen fibril and initially in relation to the dense cross bands.

The ground substance of bone matrix is the extracellular and interfibrillar component of bone. This is a poorly defined substance consisting largely of mucopolysaccharides, held together by protein bonds. Of the several mucopolysaccharides, chondroitin sulfate A, keratosulfate and hyaluranate are found in bone.

THE PHYSIOLOGY OF SUPPORT

Wolff, in 1885, was among the first to emphasize the active or adaptive role of bone as a supporting structure. "Wolff's law," as it has come to be called, is as follows: "Every change in the form or the function of a bone, or of its function alone, is followed by certain definite changes in its internal architecture and equally definite secondary alterations in its external conformation in accordance with mathematical laws." This postulate has served as a foundation for modern studies of the structure and adaptability of bone.

From an anatomic standpoint, the structural unit of compact bone is the osteon or Haversian system, consisting of a central canal containing vessels and nerve, surrounded by concentric layers of bone with prominent cement lines and radially arranged osteocytes. Individual osteons branch and anastomose with one another following the cen-

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tral vessels and forming a continuum rather than an elaborate conglomeration of individual building blocks. On the surfaces of compact bone, circumferential lamellae are laid down by the periosteum and endosteum.

Remodeling of the osteons occurs continuously throughout the life of the human being. Absorption cavities containing blood vessels and connective tissue occur within the bone, encroaching upon mature osteons. At a certain point, resorption ceases, and rebuilding begins with the formation of a new osteon. The time required for the complete cycle is about 10 to 12 weeks, at which point the new osteon is 90 per cent mineralized. Mineralization then continues at a slow rate for the next five months or longer. During the period of rapid mineralization, the osteon is described as active or metabolic. As activity subsides, the unit is termed inactive or structural bone, and as such it plays little part in ionic interchange until it is encroached upon by another absorption cavity.

The continuous remodeling explains the method by which a bone, when once formed, adapts to various intrinsic and extrinsic influences. There is an inherent factor in the embryological formation of a bone that determines its general shape, but physical factors play an important part in forming, preserving and altering the ultimate structure. It has been shown that a long bone isolated from a chick or mouse fetus and grown in tissue culture will acquire a fairly normal shape at one point in its development. With further growth, however, distortion takes place, particularly in areas normally supported or influenced by muscle attachments or weight bearing. A clinical example of this can be seen in congenitally dislocated hips, where the muscle and joint relationships are altered and, as a result, the typical contour and trabecular pattern of the femoral head and neck and of the acetabulum fail to develop.

In addition to the changes that occur in embryonic or developing bone, the adaptability of mature bone to extrinsic stress factors has been demonstrated by numerous experiments. When the normal stress on a bone is diminished, as in paralysis or immobilization of an extremity, moderate to marked atrophy or osteoporosis of the bone will result. From 25 to 50 per cent of the mineral may be lost by the time rarefaction becomes apparent on x-ray. Rapid demineralization of large areas of the skeleton may be associated with hypercalcemia and increased calcium in the urine. With restoration of normal stress patterns, bone density returns to normal.

When the normal architecture is completely disrupted by fracture and subsequent malunion, the bone makes a definite attempt to remodel itself in accordance with the altered lines of force. This capacity for remodeling is particularly evident in young bones, where marked deformities are completely realigned over a period of several years.

THE PHYSIOLOGY OF GROWTH

Serious investigations of the mechanism of bone growth date back to the Eighteenth Century. John Hunter's classic experiment using lead pellets implanted in the leg bone of a pig demonstrated that bones grow in length only at the ends. Almost simultaneously, it was discovered that madder, which produces a red dye, would stain newly formed bone when it was fed to growing animals. Using this material, various investigators were able to show that a bone grew in circumference by apposition of new bone on the surface, and that the most active new-bone formation occurs at the ends of the bone.

Since that time, a number of other substances have been found that will be incorporated into new bone. Recently, attention has been focused on tetracycline, which is bound to the collagen of newly-forming bone. This substance fluoresces brightly when viewed under ultraviolet light, delineating the active osteons. Similarly, radioactive isotopes of calcium and phosphorus will be incorporated into bone salt and can be demonstrated by microradiographs or external radiation counters. Such technics as these are being used extensively today in studies of the growth processes of bone.

In the embryo, bones develop in two characteristic manners. In most instances, bone forms in a preexisting cartilage model through the process of endochondral ossification. The remaining group, notably the flat bones of the skull, ossify directly from mesenchymal tissue by means of intramembranous ossification. As bone growth continues after birth, the increase in length occurs at the epiphyses, as endochondral ossification, whereas appositional growth on the surface is intramembranous in nature. Growth at the epiphyses continues through puberty, at which time the epiphyseal plates close.

The blood supply of the epiphyseal plate is derived from the epiphyseal side, and consists of many capillaries which enter the cartilage of the resting zone and penetrate to the proliferative zone but do not cross the entire plate. Destruction of this blood supply will distort the pattern of the entire epiphyseal plate and bring about early closure. The blood supply on the metaphyseal side consists of capillary buds growing into the area of disintegrating cartilage cells. Interruption of those vessels will result in widening the epiphyseal plate temporarily as a result of continued cartilage proliferation without ossification. With reestablishment of the metaphyseal vessels, the plate is restored to its normal width.

Of the naturally occurring factors that influence the rate of a bone's growth, the one most commonly encountered is trauma. Although it is obvious that a fracture across an epiphyseal plate, with disruption of cells, can cause a growth arrest, it is more difficult to explain why a fracture some distance from the plate can accelerate growth. It can be

shown, however, that the overgrowth is a result of stimulation of the main growing epiphyseal plate of the involved bone, probably through an increased local blood supply.

Radiation on the epiphysis is to be considered in the same general category as trauma. Small doses directly to an epiphyseal plate produce temporary disorganization of the cells. Larger doses, in the neighborhood of 1800 to 2600 r., cause gross cellular disorganization and permanent growth arrest.

Attempts have been made to estimate the force exerted by the growing bone. A group of investigators using calves showed that a pressure of 560 pounds must be exerted before a measurable retardation is produced. Transposed to human beings, this represents a far greater sustained pressure than ever occurs physiologically. Although such pressures can be obtained surgically, through the insertion of steel staples across an epiphysis, even such staples have been straightened and broken by the force of the growing plate.

Hormonal influences play a large part in general bone growth, although only the growth hormone secreted by the anterior pituitary appears to exert a specific effect upon the epiphyseal apparatus. Hypophysectomy in experimental animals leads to prompt growth arrest, and growth resumes following the administration of growth hormone. Attempts to stimulate growth in dwarfs through the administration of this hormone derived from bovine sources have been disappointing. However, recent experiments using human growth hormone have been effective in stimulating growth where epiphyseal plates had not yet closed. A species specificity for this hormone has thus been indicated.

A deficiency in thyroid hormone results in dwarfism, if present at birth. Many studies on the effect of thyroid hormone alone on growth have seemed to indicate that it has a nonspecific effect on growth that may reflect the effect of thyroid hormone on the general metabolism. An overdose of thyroid hormone will promote a temporary increase in growth, but will result in early closure of the epiphyses.

Chorionic gonadotropin and androgens have been shown to have a stimulating effect on growth, but to cause a premature development of sexual characteristics. The effects are similar to those of the growth hormone of the anterior pituitary.

Certain compounds have been used experimentally to distort growth. The most notable of these is an extract of the sweet pea (Lathyrus odoratus) seed, which when administered to the young animal will cause distortion of the epiphyseal plate and loosening of ligamentous insertions, with resultant structural deformities including scoliosis and slipped epiphyses. A decrease in the synthesis of mucopolysaccharides and an increase in the fragility of the collagen fibril have been observed. Recently, a proteolytic enzyme "papain," when administered parenterally, has been shown to produce changes in the epiphyseal plate, even to the extent of premature closure. The enzyme destroys the protein bonds in the cartilaginous matrix, liberating large quantities of mucopolysaccharide into the blood stream.

Various genetic factors play a role in bone growth. Aside from the factors that determine general body size and shape, certain genes have been associated with specific abnormalities. For example, achondroplasia, inherited as a single dominant factor, causes a characteristic shortening of all the long bones. A number of other abnormalities of growth are thought to be of genetic origin, but for the most part, too few cases have been studied or insufficient information has been gathered to permit the drawing of positive conclusions.

PHYSIOLOGY OF THE MINERAL RESERVOIR

The normal adult skeleton contains 1200 Gm. of calcium and 600 Gm. of phosphorus, accounting for 99 and 90 per cent, respectively, of the total body content of each. There is a constant and rapid exchange of these ions between plasma and extracellular fluid, and between extracellular fluid and bone, to the extent that an individual ion rarely stays in the plasma for more than a minute. Hastings and Huggins, using dogs, found that they could replace 50 per cent of the blood volume with hypocalcemic blood every 10 minutes without lowering the blood-calcium level significantly. This represents a tremendous capacity of bone for homeostatic regulation.

The most rapid exchange occurs at the crystal surfaces, particularly in the active osteons. A secondary and much slower exchange takes place within the crystals. The inactive osteons constitute a relatively inaccessible compartment or "non-exchangeable bone." It would seem reasonable that this rapid interchange of calcium and phosphorus ions between the solid and the solution phase must be a simple function of the solubility of the bone salt, but such apparently is not the case, for many attempts to explain the phenomenon purely on a solubility basis have failed to produce a satisfactory answer. Several factors complicate the problem. First, bone salt is not a simple solid of constant ionic composition. Second, equilibrium between solid and liquid phases is reached very slowly *in vitro*. Third, the relation between the bone salt and the surrounding fluid is altered by such extraneous biologic factors as age, parathyroid activity and nutritional adequacy.

In addition to the principal elements in the skeleton—calcium and phosphorus—a number of other elements are stored in bone. Of these, sodium and manganese are mobilized when needed. Other elements, when once deposited, may remain for life, and thus serve no known physiologic function.

The kidney plays an essential role in regulating

the circulating mineral concentration. This organ actually conserves calcium more efficiently than water, filtering and then reabsorbing actively, in the distal tubules, all but the calcium in complex forms, achieving 99 per cent reabsorption. It does the same for phosphate. In chronic renal insufficiency, an increased load is placed on the bone reservoir, and rickets or osteomalacia may occur.

Another factor in mineral regulation is the intestinal tract, through which the elements gain entrance to the body. Evidence suggests that calcium absorption is under hormonal control, and is not related solely to gross intake. Phosphate absorption, on the other hand, seems to occur largely by passive diffusion. Abnormally high concentrations of either ion in the intestine will inhibit the absorption of the other. Other factors such as faulty digestion of fats will prevent absorption and may result in osteomalacia.

The concentration of calcium and phosphorus in the serum is regulated within narrow limits by the secretion of the parathyroid glands. Parathyroid hormone affects the cellular elements of bone and kidney, increasing calcium mobilization from bone, and decreasing the calcium reabsorption by the renal tubules. The mode of action is termed the "feed back mechanism," and is the means by which a fall in serum calcium below its normal level of 10 mg./100 cc. stimulates the secretion of parathyroid hormone. This, in turn, causes an increase in the mobilization of calcium from bone and raises the serum concentration. In the absence of parathyroids, the serum calcium stabilizes at about 7 mg./100 cc., indicating that at this level the serum may be in equilibrium with the bone phase. With excess parathyroid hormone, the serum calcium may reach levels as high as 15 mg./100 cc., with greatly increased resorption of bone and with fibrous tissue replacement. Bone repair takes place rapidly, once the source of excess hormone has been removed.

From a nutritional standpoint, vitamin metabolism has been closely linked with bone, although the relationship is not clear cut in all cases. Vitamin A plays a role in general bone and cartilage metabolism, and a deficiency in animals leads to a suppression of growth and remodeling of the long bones. A gross excess in infants causes painful swelling, with periosteal thickening of the long bones. Isolated tissue culture experiments indicate a specific effect on the intercellular matrix of cartilage.

The B-complex vitamins affect tissues, which respond more rapidly than bone, and hence bone changes are not generally associated with deficiencies of this group.

Vitamin C is concerned with the formation of intercellular supporting substances such as collagen of bone, cartilage and fibrous connective tissue. A deficiency results in the clinical condition known as scurvy, in which collagen fibers are absent or deficient, and in which ossification fails to take place. In addition to the other stigmata of scurvy, epiphyseal separation in children and failure of fracture-healing can be seen. Although the actual process of calcification is not affected, the absence or defective formation of matrixes prevents ossification.

The prime effect of vitamin D is to promote the absorption of calcium from the intestine. It also complements the action of parathyroid hormone in promoting the mobilization of calcium from bone. Lack of vitamin D results in calcium deficiency in the serum, with consequent defective calcification of cartilage and the osteoid characteristic of rickets. Not only is the epiphyseal region affected, but the bones themselves in rachitic children show a decreased mineral content. Moderate hypervitaminosis D will increase absorption of calcium, producing a mild hypercalcemia and increased calcification of growing bone. Calcium deposits may occur even in soft tissues such as kidney and arterial walls. In cases of marked overdosage, secondary toxic effects occur. One can note resorption of bone similar to that seen in hyperparathyroidism, and poor calcification of new bone—a condition described as "hypervitaminosis D rickets."

The influence of various hormones on bone has been extensively studied, but with equivocal results. Estrogen has a pronounced effect on bone formation in the experimental animal, but similar effects have not been found in man. In the clinical condition of osteoporosis, where there is usually a generalized atrophy of the skelton in the post-menopausal female, administration of estrogen and androgen has been found effective in relieving pain, but there is no associated increase in bone density.

Administration of adrenal cortical steroids or associated compounds produces osteoporosis. The hormone interferes with the formation of ground substance and, consequently, with the formation of new bone, while absorption continues at a normal rate. Fractures may occur. The same effect results from administration of ACTH.

BONE AND RADIATION

Much attention has been given in recent years to the effect of radiation upon bone. This has been stimulated in part by nuclear research and by the availability of radioactive isotopes for use in diagnosing and treating various disorders.

Radioactive materials have been used in small amounts for tracer studies of bone since the introduction of P^{32} in 1935. Isotopes are administered as the ions themselves or in combination with various organic compounds having a specific physiologic activity. The commonly used isotopes are $Ca,^{45}$ $Sr,^{85}$ P^{32} and $C,^{14}$ and they are chosen because of their short half-lives, which make their influence on bone metabolism negligible.

Nuclear fission produces radioactive isotopes of 34 elements. Of these, 14 remain significantly active after a week, but only one, $Sr,^{90}$ is present in large enough amounts and is absorbed to such a degree as to be of clinical significance. Once in the serum, Sr^{90} will substitute for calcium in the crystal lattice of bone and will remain for periods exceeding a year.

The effect of internal radiation on bone depends more on the concentration and distribution of the element than on the type of radiation emitted. Although bone is relatively radioresistant, a certain amount of necrosis is produced by elements such as radium and strontium, which persist for years within the bone crystal. Follow-up studies on watch-dial painters who had ingested toxic amounts of radium have provided the best information on long-term effects of internal irradiation. A frequent finding was necrosis of the mandible and maxilla, and necrosis to a lesser extent in other bones, leading to pathologic fractures. A more serious complication was the induction of malignant tumors, usually osteogenic sarcomas, after a latent period of 12 to 30 years. Attempts to promote removal of these isotopes have included administration of citrate to increase the solubility of bone, parathyroid to increase resorption, and non-toxic elements to compete with the isotopes for a place in the crystal. So far, a slight increase in excretion has not been sufficient to modify the long-range effects of the radioactive element.

CONCLUSION

Many problems remain to be solved in the field of bone disease. Osteoporosis as a clinical entity in the older age group has been increasing and yet little is known about the pathogenesis. Scoliosis has many causes but the majority of cases are idiopathic. Paget's disease may affect three per cent of persons over 40 and the actual cause is unknown. While fractures occur as the result of trauma, the fact that they occur in characteristic sites according to age remains unexplained. Rickets has largely been controlled but a special group of Vitamin D resistant cases is stimulating further studies on Vitamin D and calcium metabolism. These are just a few examples and represent areas where much of the current research is being directed. The ultimate solution to these problems will depend upon more basic knowledge of the physiology and natural aging process of bone.

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REFERENCES

1. McLean, F. C., and Urist, M. R.: Bone, Second Edition. Chicago, University of Chicago Press, 1961.
2. Bourne, Geoffrey, H., ed.: The Biochemistry and Physiology of Bone. New York, Academic Press, Inc., 1956.
3. Glimcher, Melvin J.: Specificity of the Molecular Structure of Organic Matrices in Mineralization. In: The Biochemistry and Physiology of Bone. Washington, D. C., AAAS, 1960.
4. Neuman, W. F., and Neuman, M. W.: Recent advances in bone growth and nutrition. Borden Rev. Nutr. Res., **21**:37-60, (Jul.-Aug.) 1960.
5. Robinson, R. A., and Watson, M. L.: Collagen-crystal relationships in bone as seen in electron microscope. Anat. Rec., **114**:383-409, (Nov.) 1952.
6. Trueta, J., and Morgan, J. D.: Vascular contribution to osteogenesis: I. Studies by injection method. J. Bone & Joint Surg., **42B**:97-109, (Feb.) 1960.
7. Trueta, J., and Amato, V. P.: Vascular contribution to osteogenesis: III. Changes in growth cartilage caused by experimentally induced ischemia. J. Bone & Joint Surg., **42B**:571-587, (Aug.) 1960.
8. Greville, N. R., and Janes, J. M.: Experimental study of overgrowth of fractures. Surg., Gynec. & Obst., **105**:717-721, (Dec.) 1957.
9. Barr, J. S., Lingley, J. R., and Gall, E. A.: Effect of roentgen irradiation on epiphyseal growth. Am. J. Roentgenol., **49**:104-115, (Jan.) 1943.
10. Strobino, L. J., French, G. O., and Colonna, P. C.: Effect of increasing tensions on growth of epiphyseal bone. Surg., Gynec. & Obst., **95**:694-700, (Dec.) 1952.
11. Brues, A. M.: Biological hazards and toxicity of radioactive isotopes. J. Clin. Investigation, **28**:1286-1296, (Nov. pt. I) 1949.
12. Aub, J. C., Evans, R. D., Hempelmann, L. H., and Martland, H. S.: Late effects of internally-deposited radioactive materials in man. Medicine, **31**:221-329, (Sept.) 1952.

Parkinsonism Article by Sioux City Doctor

Evidence that parkinsonism can be inherited as a dominant trait was reported in the February 3 issue of J.A.M.A. by Dr. George G. Spellman, of Sioux City. He said that the occurrence of the disease in a 36-year-old woman had been traced to her great-grandfather.

The great-grandfather had had eight children, three of whom definitely had the disease. One of those was the patient's grandmother, three of whose children (including the patient's mother) developed it. The patient was the first of the nine in her sibling group to manifest it, but later a younger brother was stricken. The incidence of parkinsonism in that family is so high that it suggests a dominant characteristic—one that can be handed down in a gene from only one parent—Dr. Spellman said.

Some researchers have shown that the disease can be inherited as a recessive trait—i.e., inheritable only if both parents have the gene. Only one other investigator, he said, has produced evidence indicating that the trait behaves as a dominant characteristic.

The cause of the disease has not been established, but heredity has been regarded as one of the etiologic factors, since familial patterns have been noted in from five to 16 per cent of cases.

Case Studies

Unexplained Hemorrhage During Pregnancy

GEORGE G. SPELLMAN, M.D.
Sioux City

Bleeding tendencies during pregnancy are not unusual. As our knowledge of the clotting mechanism has increased, we have become able, in most instances, to determine the cause. Hypofibrinogenemia due to premature separation of the placenta, amniotic-fluid embolism, or intrauterine retention of a dead fetus are probably the most frequent etiologies.[1] Blood incompatibility of the ABO system or the Rh system in the maternal and fetal circulations may cause a lowering of the fibrinogen levels in the mother.[2] Thrombocytopenia may occur, especially in the presence of pre-eclampsia, and this may be associated with hemorrhage.[3] Unusual bleeding during pregnancy caused by hypoprothrombinemia and hypoproconvertinemia has been reported.[4] This coagulation defect may respond to intravenous vitamin K, but may not respond to oral vitamin K. Pre-eclampsia and eclampsia without thrombocytopenia frequently cause hemostatic defects, including prolongation of the clotting time of mixtures of thrombin and oxalated plasma.[1a] Rare causes of bleeding during pregnancy include abortion, thrombocytopenic purpura, and the appearance of circulating anticoagulants.

Apparently, there are still other causes. In the following case, the cause of the bleeding tendency was not found, although every effort was made to determine it. A report of this case seems warranted, since it will demonstrate that there still are factors in the hemorrhagic tendency that are unknown.

CASE REPORT

The 41-year-old wife of a physician was gravida six and para five. She was in the eighth month of her pregnancy when she was admitted to the hospital on March 18, 1959, with a history of intermittent epistaxis for 48 hours. She had been bleeding quite profusely from the nose since 10:00 p.m. the preceding evening. She reached the hospital at 3:00 a.m., and nasal packs were inserted. These failed to control the bleeding and she continued to have oozing around the packs.

Her hemoglobin at the time of admission was 8.8 Gm. Her bleeding time was 2 min. 16 sec., her coagulation time was 5 min. 30 sec., and her platelet count was 720,000. Her prothrombin time was 15 sec., and the control was 12 sec. A test for fibrinogen was normal, and a test for fibrinolysins was negative. Her red blood cell fragility was normal, with hemolysis beginning at .38 and being completed at .36. The control began at .40 and was complete at .32. Clot retraction was complete in two hours. A test for Bence Jones protein was negative. A urinalysis was normal.

The patient continued to bleed in spite of the packing, and the bleeding was so profuse that it pushed the packing out. She was given vitamin K, vitamin C, Premarin intravenously, Adrenosem intramuscularly, and Koagamin intramuscularly. She received transfusions of 16 pints of blood.

The consensus of the obstetrical consultants in Sioux City was that an induction of labor was not indicated, and that the pregnancy had little to do with the patient's bleeding tendency. Telephone consultations were also held with Dr. W. C. Keettel, head of obstetrics at the State University of Iowa, and it was his feeling too that the pregnancy was coincidental and not the cause of bleeding.

On the second day after the patient's admission, the bleeding was still uncontrolled. The blood was coming from the left nares. The left external carotid artery was ligated, but that procedure failed to control the bleeding.

A telephone consultation was held with Dr. Jack Carter, who now is head of pathology at the University of Kansas, but at that time was on the S.U.I. staff, and blood was sent to him for further tests. His results were as follows:

One-stage prothrombin	100%
Two-stage prothrombin	92%
Accelerator activity ...	100%
Fibrinogen	Normal
Fibrinolysins	None
Recalcified clotting time	1 min., 10 sec. (normal = 1½ to 2¾ min.)
Stypfen time	8 sec. (normal = 16-18 sec.)

Dr. Carter felt that these tests failed to demonstrate the cause of the patient's bleeding. Even before completing those tests, he had forwarded some vitamin KS2 to us. KS2 is a special substance to which one case of hemorrhagic tendency in pregnancy had responded. We gave it to our patient on March 21, 1959, and temporarily the bleeding seemed to decrease.

On March 23, the patient passed some black stools. It was thought that they might have occurred as a result of swallowing blood, although she had been expectorating most of the blood that

blood pressure approaches normal more readily, more safely....simply with Salutensin®

(hydroflumethiazide, reserpine, protoveratrine A–antihypertensive formulation)

Early, efficient reduction of blood pressure. Only Salutensin combines the advantages of protoveratrine A ("the most physiologic, hemodynamic reversal of hypertension"[1]) with the basic benefits of thiazide-rauwolfia therapy. The potentiating/additive effects of these agents[2-8] provide increased antihypertensive control at dosage levels which reduce the incidence and severity of unwanted effects.

Salutensin combines Saluron® (hydroflumethiazide), a more effective 'dry weight' diuretic which produces up to 60% greater excretion of sodium than does chlorothiazide[9]; reserpine, to block excessive pressor responses and relieve anxiety; and protoveratrine A, which relieves arteriolar constriction and reduces peripheral resistance through its action on the blood pressure reflex receptors in the carotid sinus.

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Each Salutensin tablet contains: 50 mg. Saluron® (hydroflumethiazide), 0.125 mg. reserpine, and 0.2 mg. protoveratrine A. See Official Package Circular for complete information on dosage, side effects and precautions.

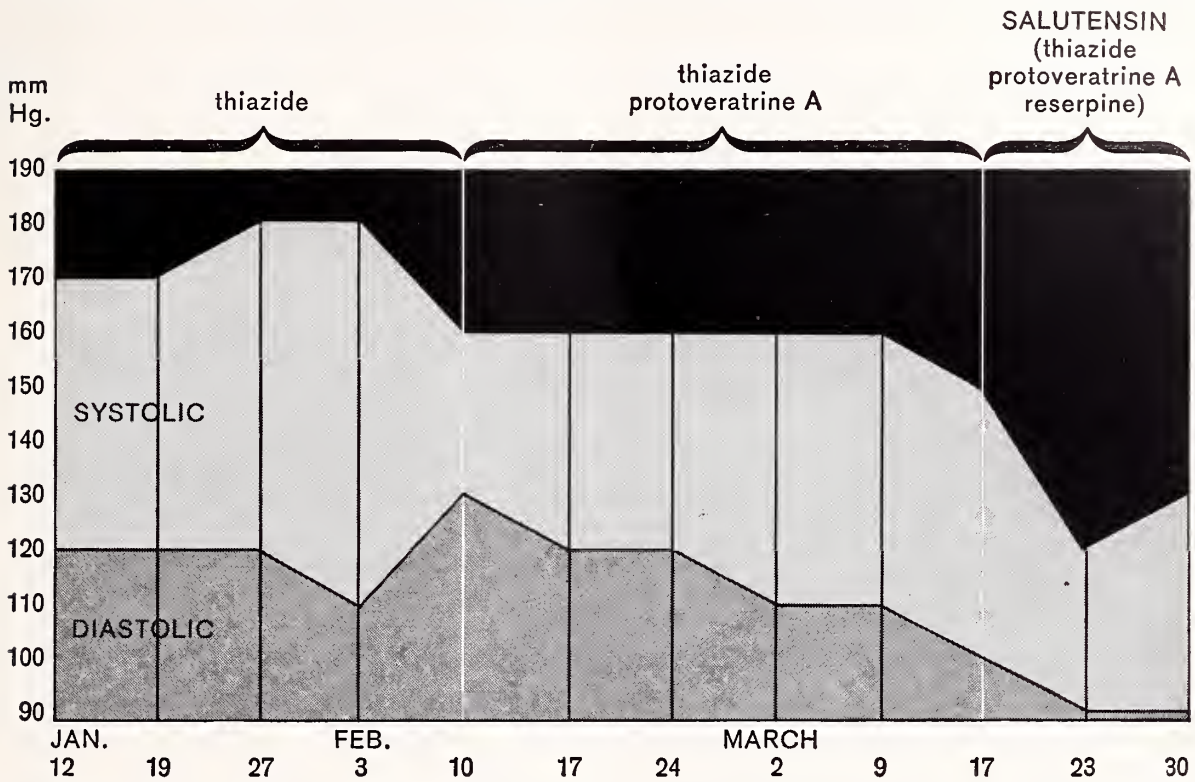
Supplied: Bottles of 60 scored tablets.

References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

all the antihypertensive benefits of thiazide-rauwolfia therapy plus the specific, physiologic vasodilation of protoveratrine A

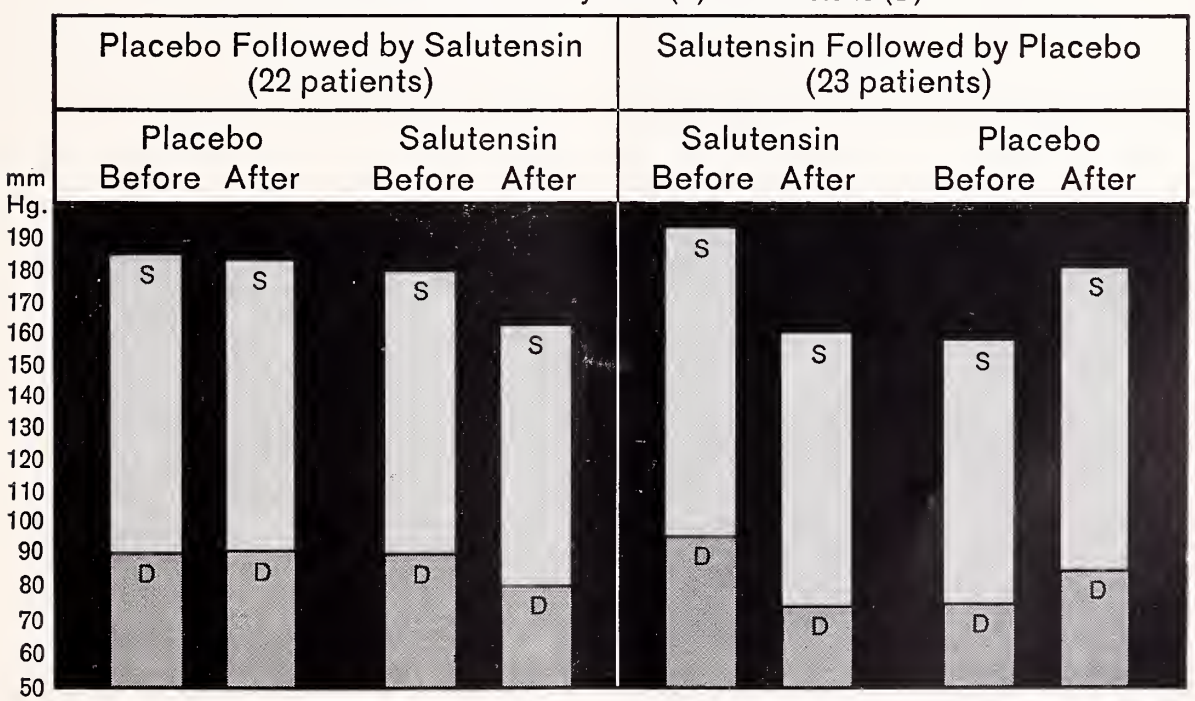
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

BRISTOL LABORATORIES/Div. of Bristol-Myers Co., Syracuse, N.Y.

came down her posterior pharynx. A urinalysis on that day showed no red cells, but a repeat urinalysis on the next day revealed many of them. Shortly thereafter, the urine became grossly bloody.

In view of the development of this generalized bleeding tendency, we felt that delivery was imperative to save the lives of the patient and the baby. The mother's condition was good, and the baby was in good condition. The patient had developed some hives after one of the transfusions.

The obstetricians agreed that delivery was indicated, and felt that cesarean section was the method of choice, since the cervix was not dilated, and was very thick. The patient was prepared for surgery, and the section was performed at 8:00 p.m. on March 24.

The change in the patient was remarkable and immediate. She had no more bleeding whatsoever, and on the next morning there was a firm, dark clot in the posterior pharynx. The urine was normal in color, and there were only a few red cells in it. After a few days, the stools were no longer tarry. The patient had a prompt and uneventful recovery.

The baby did have some difficulty a few days later, although he had been fine at the time of delivery. The pediatricians diagnosed a hilar membrane. He responded to treatment and was able to go home soon after his mother. The mother was discharged on April 1, 1959, in excellent condition. Since then, she has had no bleeding and has been perfectly healthy.

COMMENT

This is a case of hemorrhagic tendency that developed during pregnancy. It was impossible, by laboratory means, to demonstrate any abnormalities in the clotting mechanism. The obstetricians regarded the bleeding as coincidental with the pregnancy, rather than as resulting from it. The bleeding continued, and the patient developed a generalized bleeding tendency. The improvement after delivery was prompt, and the bleeding tendency ceased.

None of the usual causes were present. The patient had no toxemia of pregnancy. Her blood pressure and urine had been normal throughout the pregnancy. After delivery, the placenta was examined very carefully, but there was no premature separation or other abnormality of the placenta or products of conception. Though every possible effort was made to determine the cause of the bleeding, none was found. Every medication that might even remotely affect bleeding had been utilized to no avail.

The cessation of bleeding after delivery was so dramatic that all of the physicians felt there must have been a cause-effect relationship between the patient's pregnancy and her bleeding. That factor—whatever it was—disappeared within a few hours after delivery.

SUMMARY

In the case that has been presented, hemorrhage occurred during pregnancy, and the cause could not be found, despite diligent and exhaustive examinations. The hemorrhagic state ceased promptly upon delivery of the baby by cesarean section.

It is possible that the hemorrhagic state may have been due to some circulating factor arising from the pregnancy.

The pregnancy was normal in all other respects. The baby had a stormy course, beginning a few hours after delivery, but is well and healthy today, as is his mother.

REFERENCES

1. (a) Ratnoff, O. D., Pritchard, J. A., and Colopy, J. E.: Medical progress; hemorrhagic states during pregnancy. New England J. Med., **253**:63-69, (Jul. 14) and 97-102, (Jul. 21), 1955.

(b) Hartmann, R. C., and McGanity, W. J.: Fibrinogen deficiency in pregnancy; report of unusual case. Obst. & Gynec., **9**:466-471, (Apr.) 1957.

(c) Weiner, A., Reid, D. E., and Roby, C. C.: Coagulation defects associated with premature separation of normally implanted placenta. Am. J. Obst. & Gynec. **60**:379-386, (Aug.) 1950.

(d) Ratnoff, O. D., Lauster, C. F., Sholl, J. G., and Schilling, M. O.: Hemorrhagic state during pregnancy with presence of maternal Rh antibodies, death of fetus and hypofibrinogenemia. Am. J. Med., **13**:111-120, (Jul.) 1952.

2. Reilly, C. T., and Zito, A. J.: Hypofibrinogenemia and ABO heterospecific pregnancy; preliminary report. Am. J. Obst. & Gynec., **77**:375-381, (Feb.) 1959.

3. Ferguson, J. H.: Platelet decrease and disappearance in obstetric conditions. Am. J. Obst. & Gynec., **72**:1315-1318, (Dec.) 1956.

4. (a) Setna, S. S., and Altman, S. J.: Unusual bleeding during pregnancy; report of case due to hypoprothrombinemia and hypoproconvertinemia. Blood, **11**:430-435, (May) 1956.

(b) Hill, J. M., Speer, R. J., Roberts, A., and Malonev, M.: Hypoprothrombinemia and hypoproconvertinemia during pregnancy. J. Lab. & Clin. Med., **45**:308-312, (Feb.) 1955.

The Management of Trauma

A three-day postgraduate course on the management of trauma is to be presented on March 7-9 at the University of Colorado Medical Center, in Denver, with the Colorado Committee on Trauma of the American College of Surgeons as a cosponsor. It will provide a broad review of the traumatic problems commonly met in the civilian population.

A faculty of 80 Colorado physicians will be joined by two guest teachers, Dr. Edwin F. Cave, a consulting and visiting orthopedic surgeon at Massachusetts General Hospital and a faculty member at Harvard, and Dr. Preston A. Wade, a professor of clinical surgery at the Cornell University Medical College and a past-chairman of the Trauma Committee of the American College of Surgeons.

In the selection of subjects to be reviewed in the course, emphasis has been placed upon basic physiologic processes that allow an understanding of the pathology and abnormal physiology resulting from trauma. The eight simultaneous small group clinics to be held on two mornings will allow consideration and demonstration of practical aspects of patient care, discussion of cases, and review of the material presented in the more formal parts of the program.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 40-YEAR-OLD, MARRIED TEACHER was referred to this hospital in September, 1957, for pulmonary-function studies because an abnormal chest x-ray had suggested pulmonary fibrosis. He had had episodes of tachycardia for 20 years that started and ended abruptly. Ten years before his admission, clubbing of the fingers had been noted, but a chest x-ray had been normal.

The patient's blood pressure was 120/80 mm. Hg, his pulse rate was 80/min., and his respiratory rate was 20/min. His physical examination was normal except for clubbing of his fingers. The hemoglobin was 12 Gm./100 ml., and the white blood cell count was 12,950/cu. mm. A chest x-ray showed finely nodular densities throughout both lung fields. Pulmonary-function studies revealed normal arterial oxygen saturation and CO_2. The vital capacity was 3.9 L., or 77 per cent of predicted normal. The residual volume was 1.7 L., or 108 per cent of predicted normal. The distribution of inspired air was slightly uneven. The maximal breathing capacity was 105 L./min. The diffusing capacity was 17 ml./min., or 60 per cent of predicted normal. The patient was feeling well. No medication was given, and he returned to full-time work.

During the following 2½ years, he was examined three times, but no change was found in his condition. In February, 1960, his hemoglobin was found to be 9.5 Gm./100 ml. His urine and stool were negative for blood. X-rays of the esophagus, stomach, duodenum and colon were normal.

During March and April, 1960, he developed night sweats and migratory arthritis involving both feet, the right hand and the left elbow. The pain was so severe that he had to be on crutches much of the time. He was treated with aspirin, and was urged to continue his work. In July, he was unchanged, clinically. The urinalysis was negative, the hemoglobin was 11 Gm./100 ml., and the white blood cell count was 7,150/cu. mm., with 56 per cent polymorphonuclear leukocytes, 2 per cent eosinophils, 1 per cent basophils, 39 per cent lymphocytes and 2 per cent monocytes. The red blood cell count was 2,990,000/cu. mm., the hematocrit was 30 per cent, the platelet count was 100,000, and the reticulocyte count was 3 per cent. The latex and the bentonite agglutination tests were negative. The erythrocyte sedimentation rate was 99 mm./hr. He was treated with 10 mg. of prednisone per day, and his symptoms improved.

In November, 1960, he was having drenching night sweats, a non-productive cough, vocal hoarseness, and continued difficulty with his joints. His hemoglobin was 9.5 Gm./100 ml., and his white blood cell count was 5,600/cu. mm. Posteroanterior and lateral films of his chest showed no change in the pulmonary lesion. Pulmonary-function studies produced results similar to those of September, 1957. A bone marow was very cellular. There was erythroid hyperplasia, with anisocytosis, polychromasia and stippling of the red blood cells. The myeloid elements were plentiful, and showed a slight shift to the left and an increase in the basophils. The megakaryocytes were adequate in number, but the platelets were diminished. The patient's total bilirubin was 0.6 mg. per cent, his cholesterol 186 mg. per cent, and his uric acid 4.1 mg. per cent. A lupus erythematosus preparation was negative. Serum iron was 87 micrograms per cent, and total serum protein 7.4, albumin 4.1, and globulin 3.3 Gm. The red blood cell half-time survival was 21.5 days. Normal uptakes were demonstrated over the liver and spleen following a radioactive chromium study. The direct and indirect Coombs tests were negative. The fragility test showed that hemolysis began at .44 and was complete at .28. A gastrocnemius muscle biopsy showed normal skeletal muscle.

Prednisone was increased to 60 mg. per day, and thereafter the patient felt very much better. He was able to continue teaching. In December, three sputum smears for acid-fast bacilli were negative. The sputum was cultured for tuberculosis and was negative, and guinea pig inoculations were likewise negative. By mid-January, however, he was in trouble again, with weakness, joint pain and difficulty in sleeping.

His symptoms continued into February. He was unable to work. On February 13, 1961, he returned to the hospital because of pain in the sternum and

difficulty in swallowing. A physical examination showed no change. The hemoglobin was 9 Gm./100 ml., the white blood cell count was 14,000/cu. mm., and there were 2 per cent bands, 42 per cent segmented polymorphonuclear leukocytes, 44 per cent lymphocytes, 3 per cent monocytes, 6 per cent nucleated red blood cells and 3 per cent normoblasts.

On February 19, a striking number of petechial hemorrhages appeared throughout his skin, and he developed epistaxis. On February 22, the hemoglobin was 6.8 Gm./100 ml., and the white count was 43,000/cu. mm. He got progressively worse, and died on February 24.

SUMMARY OF CLINICAL DISCUSSION

Dr. George N. Bedell, Internal Medicine: Mr. James Auer will discuss the case for the medical students.

Mr. James Auer, junior ward clerk: The student discussion for this CPC has been prepared by the junior ward clerks of Ward C-31, the others of whom are Mary Jane Adams, James Addy, Roger Atkins and Cass Bailey.

In September, 1957, the patient appears to have had a chronic illness of his respiratory system, indicated by clubbing of the fingers, the roentgenograms and the pulmonary function tests. These suggested a decrease in the area available for gaseous exchange. The finely nodular densities throughout both lung fields suggest the following possibilities: miliary tuberculosis, sarcoidosis, idiopathic pulmonary hemosiderosis, pneumoconiosis, fungus disease and lymphangitic carcinomatosis. Beginning the process of inductive reasoning, one can discard miliary tuberculosis and lymphangitic carcinomatosis on the grounds of the subsequent duration of the illness. The patient's occupation would tend to rule out pneumoconiosis. Histoplasmosis and coccidioidomycosis skin tests were found to be negative. Thus, we are left to consider only sarcoidosis and idiopathic pulmonary hemosiderosis. We shall come back to these a little later.

The patient's migratory arthritis, which may actually be an arthralgia, brings to mind such diseases as lupus erythematosus, polyarteritis, hypertrophic osteoarthropathy, dermatomyositis, rheumatoid arthritis and rheumatic fever. Lupus was ruled out by a negative lupus erythematosus preparation. Polyarteritis and dermatomyositis were ruled out by a muscle biopsy. The latex test was performed to rule out rheumatoid arthritis. In regard to hypertrophic osteoarthropathy, we should have liked to see x-rays of the patient's clubbed fingers and affected joint, but we understand that films were not taken of those areas at the time when they first were noted. We are ruling out rheumatic fever because the patient seems not to have had a previous streptococcal infection, and because he had no observable cardiac involvement during the remainder of his life.

A steadily decreasing hemoglobin, in the face of erythroid hyperplasia and without blood loss in the stool or urine, and a half-time red blood cell survival rate of 21.5 days strongly suggest an increased rate of red-cell breakdown in the body. As noted in the protocol, radioactive chromium uptake studies over the liver and spleen showed that those organs were not the site of this destruction. Physical examination showed no abnormality of the liver or spleen.

Now, let's go back to the pulmonary densities noted on x-ray. Two conditions, sarcoidosis and idiopathic pulmonary hemosiderosis, were not ruled out. In view of the patient's migratory arthritis or arthralgia, hypertrophic osteoarthropathy remains to be dealt with. His anemia problem indicates an as yet unknown source of red-cell destruction and/or loss.

These three conditions—anemia, pulmonary nodular densities and hypertrophic osteoarthropathy—seem interrelated. Sarcoidosis does not fit the pattern.

The account that we have been given of the period immediately preceding this man's death is rather vague and confusing. From the information contained in the protocol, it appears that the immediate cause of death was probably a combination of elements, i.e., toxicity from chronic illness of at least 41 months, and a possible pneumonia with septicemia, which may have been enhanced by the high and prolonged dosages of prednisone.

Our diagnosis is idiopathic pulmonary hemosiderosis, with hypertrophic pulmonary osteoarthropathy.

Dr. Richard D. Eckhardt, Internal Medicine, Iowa City VA Hospital: I appear before you most humbly today, especially since I am utterly confused about the nature of this patient's illness. Usually, I find the junior students' discussion extremely helpful, but today my diagnosis differs from theirs, and our disagreement makes me even less sure of myself.

The patient is a 40-year-old man who is known to have had paroxysmal tachycardia for 20 years, prominent clubbing of the fingers for 10 years, pulmonary changes—presumably of a fibrotic and restrictive sort—for fewer than 10 but more than three years, and a severe, crippling arthritis associated with fever and anemia for approximately one year. The anemia may have existed for as long as three years. The final episode of his illness was characterized by a severe hemorrhagic phenomenon, marked leukocytosis and death.

I find it most difficult to fit these all neatly together, and it seems that it would be acceptable to make several diagnoses. Nevertheless, I shall talk about several illnesses and see whether I can reasonably arrive at one all-inclusive diagnosis.

Paroxysmal tachycardia often occurs in the absence of organic heart disease. This aspect of the

patient's difficulties was noted when he first sought medical attention, but then wasn't accorded very great consideration until three or four years before he died. The myocardium may be involved in several of the diseases that I shall mention presently, but there was no evidence of valvular heart disease, of severe or progressive myocardial disease, or of heart failure.

I find it perplexing to attempt a rational explanation of the clubbing of this patient's fingers. There seems to be do doubt that clubbing was present, and had been for several years. In fact, it had caused enough concern, ten years earlier, so that a chest x-ray was done. That film was interpreted as normal. Clubbing can be congenital. Dr. Bean has reported an unusual form of it that is seen in packing-house workers who pull hides off cattle. The workers' thumbs are spared this deformity. It is doubtful, however, that today's patient had either the congenital or the packing-house worker's acquired form of clubbing. Furthermore, he didn't have congenital cyanotic heart disease. Perhaps the most logical explanation for clubbed fingers in a middle-aged patient with x-ray evidence of pulmonary fibrosis would be bronchiectasis, yet there were no symptoms that might suggest active disease of that sort.

At this stage in the discussion, I should like to ask Dr. Gillies to give us his impressions of the x-rays.

Dr. Carl L. Gillies, Radiology: The first film of the chest was obtained in 1952 and was thought to be negative. In the second film, obtained in 1958, there appeared to be a diffuse fibrosis in both lungs. The third film, in November, 1960, showed a slight but definite increase in the amount of fibrosis. The fourth film, obtained only two months later, in late January, 1961, showed very little progression in the amount of fibrosis. The heart was not enlarged. We could see no evidence of bronchiectasis. As far as we were concerned, the diagnosis was diffuse but idiopathic fibrosis of the lung—not very pronounced, but nevertheless definite.

Dr. Eckhardt: I gather that you have no x-rays of the bones, Dr. Gillies.

Dr. Gillies: We have none.

Dr. Eckhardt: Thus, the x-ray findings were consistent with pulmonary fibrosis. I think the lung-function tests suggest some degree of restricting ventilatory disease of the lungs, fitting the broad category of alveolar capillary block. This was not marked. The patient was not cyanotic. His pulmonary disability presumably didn't progress markedly during a three-year period of observation.

At this time, it is necessary to attempt defining this patient's chronic pulmonary fibrotic disease. As I said, although bronchiectasis must be considered, I don't think we have much to support that diagnosis. However, one is sometimes surprised to find evidence, at autopsy, of considerable bronchiectasis of a congenital nature that hadn't been suspected clinically. Production of large amounts of foul-smelling sputum need not be present in uncomplicated bronchiectasis. There is very little in the patient's history to support a diagnosis of chronic lung disease of an infectious type. Concern was evidenced about the possibility of tuberculosis, but sputum cultures were negative.

Several illnesses that can involve the lungs are characterized as diffuse, disseminated, nonlipoid reticuloendothelioses.[1] These have been grouped by Lichtenstein under the term "histocytosis X." They include eosinophilic granuloma, Letterer-Siwe disease and Hand-Schüller Christian disease. I believe these conditions are sufficiently nonspecific so that a lung biopsy would be requisite in determining the proper diagnosis. The same would hold true for the various forms of fibrosing interstitial pneumonitis described by Hamman and Rich.[2] Another group of diseases, which Fienberg has called pathergic granulomatoses,[3] presumably are due to altered tissue reactivity. Löffler's syndrome fits into this grouping, as does Wegener's granulomatosis, polyarteritis nodosa, systemic lupus erythematosus and other forms of allergic angiitis. Again, I would need a lung biopsy, or findings in addition to those mentioned in the protocol, if I were to diagnose one of those illnesses.

Pulmonary hemosiderosis was mentioned by the junior students, and must be considered in the differential diagnosis. Obviously this man's blood was given a "million-dollar work up." As you know, Drs. Hamilton and Sheets have done some excellent work demonstrating that one of the major factors responsible for the anemia of primary (idiopathic) pulmonary hemosiderosis is hemolysis of blood cells. The studies on this man were sufficient to suggest that there was a degree of hemolysis of his blood. However, the cases that I have read about—and these have included those of Hamilton and Sheets—all have had hemoptysis. The hemoptysis need not be very prominent, but it should occur, at least to a limited extent. Furthermore, I am unable to find any descriptions in the literature of patients with pulmonary hemosiderosis associated with crippling arthritis. Thus, I cannot find sufficient data to support this intriguing diagnosis.

Prior to the last year of his life, the patient had no difficulties other than a few attacks of paroxysmal tachycardia and the pulmonary pathology that was investigated. Then, he suffered from a crippling migratory polyarthritis, and had to walk with crutches. I gather that the physicians who saw him thought, initially, that he had rheumatoid arthritis. They gave him some aspirin and said, "Keep active; don't give up!" But it was evident after just a couple of months that he needed something more.

He was given cortisone-like drugs, and these were continued until his death.

I have thought that sarcoidosis must be considered seriously in this man. There are reports in the literature describing individuals with sarcoidosis with polyarthritis that appeared classical for rheumatoid arthritis. Certain of these patients evidenced improvement when they were given steroids. Thus, I am sure that the migratory polyarthritis seen in this man could be consistent with that seen in association with Boeck's sarcoid. Nevertheless, this is fairly rare. Anemia is also seen in sarcoidosis. Its etiology is unknown, although it is often explained on the basis of hypersplenism. In this man, the spleen was not described as enlarged. Clubbing is seen in Boeck's sarcoid, but only occasionally. Against this diagnosis are the patient's normal serum globulin and normal serum calcium. Most patients with pulmonary involvement from sarcoid have hilar adenopathy. This man did not. For these many reasons, I am skeptical of the diagnosis of Boeck's sarcoid. It is possible, and I wouldn't be surprised to hear Dr. Stamler say so, but it would not be my first diagnosis.

This man had an illness that seemed primarily to bother his joints, and from the description we have been given of it, I think we should say that he had rheumatoid arthritis. There seems to be absolutely nothing wrong with that as a clinical diagnosis. The patient experienced a rather poor response to salicylates, but a fairly good response to steroids. His arthritis smoldered along, first getting better and then worse. With a further increase in the steroid dosage, the arthritis again improved. Systemic lupus erythematosus also should be considered, as should scleroderma. This latter illness seems even more likely in view of the patient's subsequent difficulty in swallowing. Thus, I think one of the collagen vascular diseases must be very seriously considered as responsible for his arthritic complaints.

Now, is it possible to reconcile pulmonary fibrosis with a collagen vascular disorder? I think so. There are articles in the literature describing pulmonary fibrosis even without the arthritic manifestations of rheumatoid arthritis. Although one would be more comfortable diagnosing rheumatoid arthritis if either the bentonite or the latex agglutination test had been positive, it should be recalled that these tests are negative in perhaps 20 to 25 per cent of individuals with rheumatoid arthritis.

As I surveyed a list of various illnesses in which anemia is associated with joint disease, I ran across another condition that I think should be mentioned. It is rare, and perhaps I'm altogether out of line in mentioning it, but I shall. It is amyloidosis.[4] I am thinking chiefly of primary, systemic amyloidosis, although there is a possibility of its being secondary to chronic lung disease. There aren't a great many features of this case to support such a diagnosis, but amyloidosis *can* be associated with joint trouble and with anemia. The few individuals whom I have seen with primary systemic amyloidosis have been mainly those whom Dr. Maurice VanAllen has studied, and they have had neurologic manifestations. This patient had none, but they need not be present. Amyloidosis could conceivably explain the patient's paroxysmal tachycardia on the basis of cardiac involvement. Furthermore, the patient's terminal episode could be accounted for on this basis, since involvement of blood vessels and marked purpuric or hemorrhagic phenomena are very frequently seen as a terminal event in that particular illness. I don't regard primary systemic amyloidosis as a very reasonable diagnosis, but it is a possible one.

Another possible explanation for the terminal hemorrhagic disturbance might be that the patient was having difficulty in forming platelets. This phenomenon has been observed in patients receiving very large doses of steroids. Whether this difficulty was present. I do not know.

I can't adequately explain the patient's terminal picture. I am particularly disturbed about his sternal chest pain, which certainly makes one think of leukemia. From the data available in the protocol, I would have to assume that his terminal bleeding episode perhaps was related to an overwhelming infection, or perhaps related to his large doses of steroids.

In summary, I think this gentleman's disease involving his lungs and his joints, and associated with a mild hemolytic anemia, was probably a systemic illness. My first choice would be to place it in the group of collagen vascular diseases, probably in the rheumatoid arthritis group. However, I think it isn't possible to rule out scleroderma, or to be completely sure that we aren't dealing with systemic lupus erythematosus. I think that Boeck's sarcoid might be a reasonable explanation of all the findings. It is intriguing to consider the remote possibility that primary systemic amyloidosis will be found. I don't think that this man had an infectious process such as disseminated tuberculosis or histoplasmosis, but again I don't feel that we have sufficient evidence to rule this out.

Dr. Bedell: Dr. Eckhardt has quite adequately summarized the clinical impressions that occurred to those of us who attended the patient. We went through the same thought processes, and our clinical diagnosis was a collagen vascular disease. We thought that it probably was rheumatoid arthritis with pulmonary involvement and anemia.

There were a number of things that we were concerned about. Lupus erythematosus was one of them, and numerous studies were done for it—more than are mentioned in the protocol. We were concerned about leukemia, and bone-marrow tests were done a number of times. We were concerned

about periarteritis, and a muscle biopsy was done. It was negative. Thus, up until three days before the patient died, the clinical diagnosis was very much in doubt. Then some things happened which made the clinical diagnosis clear. But I shall let Dr. Stamler unveil those at the proper time.

Are there any questions?

Mr. J. W. DeGroote, senior medical student: Aren't these findings compatible with a diffuse lymphoma?

Dr. Bedell: I think they well might be.

Dr. Henry E. Hamilton, Internal Medicine: In viewing the muscle biopsy, did you see any indication that this man could have had acute thrombotic thrombocytopenic purpura?

Dr. Bedell: That possibility was considered, but there wasn't anything particularly to suggest it in terms of platelet morphology. The platelet counts were fairly normal during much of the time.

Dr. D. C. Funk, Internal Medicine: Was the appearance of the joints typical of rheumatoid arthritis?

Dr. Bedell: No, there wasn't really very much to see in the joints. They were fairly normal, though slightly red and quite painful. The patient wasn't inclined to exaggerate his symptoms. He had had a great deal of difficulty with his joints, and he did have to walk on crutches. He continued to teach until the end of December, and indeed he attempted to teach during part of January. Thus, he made a real effort to keep going, but just didn't have the strength.

Dr. Francis Goswitz, Internal Medicine: Did he ever have an enlarged liver or spleen?

Dr. Bedell: Not until very close to the end.

Dr. Hamilton: Did he have an accentuated pulmonary second sound at any time? And was the heart overactive to palpation?

Dr. Bedell: The second pulmonary sound was normal, and the cardiac examination continued to be normal. There was no overaccessibility or underaccessibility. Were you wondering about evidence of pulmonary hypertension, Dr. Hamilton?

Dr. Hamilton: Yes, and also about the possibility of a fibrotic process akin to the one that one sees in idiopathic retroperitoneal fibrosis.

Dr. Bedell: There was no evidence of pulmonary hypertension. We considered that as a possibility. The fibrosis in the lungs was quite definite, but as far as we could tell, it didn't change. We had great difficulty in trying to decide what was causing the new symptoms that had been present for at least a year—the anemia, the joint pains, the fever and the chills.

Dr. Frederic W. Stamler, Pathology: At autopsy, there were aspects of disease that correlated with the patient's clinical history. Chronic pulmonary disease had been followed by a more acute condition with more generalized systemic involvement, and possibly those two aspects of his illness had overlapped somewhat. The patient did have rather extensive pulmonary fibrosis that correlated well with the x-ray findings in that it was of a very finely nodular or lobular type. Just as there had been very little roentgenological evidence of progression of this lesion, there was also little histologic evidence of active progression of this aspect of the disease that could be seen at the time of autopsy. Apparently, the process had been rather stable—an old, rather quiescent pulmonary fibrosis. There were also foci of myocardial fibrosis and some old pericardial adhesions, all of which may have been parts of the same process involving the lungs.

The reaction of the involved lung tissue was apparently a non-specific one. It was not a granulomatous reaction, but simply a chronic fibrosing process. Whether the corticoid therapy might have altered it in some way, I can't say, but I doubt that it could have completely eliminated all evidence of a more specific type of involvement.

The joints were not examined histologically at autopsy. There was no gross indication of deformity at that time. There was no evidence of a generalized systemic disease such as lupus or other collagen vascular diseases.

Then, in addition to the old process, there was a recent one of great significance. Terminally, this patient had had a myelomonocytic leukemia with extremely extensive overgrowth of the bone marrow and with extensive involvement of the remainder of the reticuloendothelial and lymphoid structures of the body. There was some degree of leukemic infiltration in almost all of the organ systems of the body. The extensive petechiae and ecchymoses that had been noted clinically were readily explained on the basis of platelet deficiency associated with leukemic overgrowth of the bone marrow.

Besides the old fibrosis, the leukemic process had extensively involved the lungs, both by a direct infiltration of leukemic cells and by exudation of those cells into lung alveoli. There was also a great deal of associated pulmonary hemorrhage. That extensive pulmonary involvement was possibly the most significant factor in the patient's terminal course.

Dr. William B. Bean, Internal Medicine: Can you estimate how long that leukemia had been going on?

Dr. Stamler: I believe the sternal marrow had been interpreted as normal two months before the patient's death. In the meantime, there apparently had been a complete shift from essentially normal marrow and peripheral blood. At autopsy, the bone marrow was almost completely overgrown with leukemic cells, and the peripheral blood picture was also diagnostic of leukemia. It is difficult to accept the idea that all of this can have happened in so short a period of time, and I wonder how much the corticoid therapy had to do

with temporarily masking or suppressing the findings of leukemia.

Dr. Hamilton: Back in November, I think, the marrow was recorded here as "normal marrow," with questionable erythroid hyperplasia, myeloid hyperplasia, and apparently a slight increase in the basophils. In retrospect *only,* one might say that the increase in basophils was the tip-off to the fact that we were dealing with a leukemia, but we could not have proved it at that time.

Dr. Bedell: It was our impression that the illness had probably been going on for at least a year. The anemia was an incidental finding when the patient returned for his routine, once-a-year function study. We know that a year earlier he had had a normal hemoglobin. He had been anemic for a year or longer, but for less than two years. Then he developed these other symptoms, and it was our clinical impression that leukemia represented the illness which began in February and ended a year later.

Dr. S. Shining, resident, Internal Medicine: Did you ever do a phosphatase stain of the white blood cells?

Dr. Bedell: Yes, that was done at one point. It was normal, but the white blood cell count was normal. The leukemic cells were not circulating at the time.

We had the patient cough up sputum, and we looked for iron in it. We were thinking of pulmonary hemosiderosis, but we didn't find any evidence of iron in the sputum.

Dr. Bean: What was wrong with the patient's joints?

Dr. Bedell: I'd like to know, too. He was having terrible pain and discomfort in his joints, but relatively little could be found on physical examination. X-rays were not taken of the joints, and unfortunately the joints were not examined at postmortem.

Dr. Bean: Did he have pain in the long bones, or just in the joints?

Dr. Bedell: Mainly in the joints, except that in February, I think, the pain in his sternum was probably bone-marrow pain, although he interpreted it as difficulty in swallowing. We got x-rays of the esophagus, stomach and duodenum, and they were normal. His sternum was infiltrated with procaine, which gave some relief, and then with cortisone, which also gave some relief.

Dr. Shining: At what point in his course did you do the alkaline phosphatase stain?

Dr. Bedell: That was done in or about October. In October and November, the patient had most of those special hematologic studies. We demonstrated that he had a hemolytic process, but we were unable to show that cells were being clustered away in any special part of the body.

STUDENTS' DIAGNOSIS

Idiopathic pulmonary hemosiderosis, with hypertrophic osteoarthropathy.

DISCUSSANT'S DIAGNOSIS

Collagen vascular disease, probably rheumatoid arthritis.

ANATOMICAL DIAGNOSIS

1. Acute myelomonocytic leukemia, with widespread leukemic infiltrates
2. Thrombocytopenic purpura, secondary to leukemia
3. Ulceration of gastric and esophageal mucosa, secondary to leukemic infiltrates
4. Fibrinous pericarditis with adhesions, secondary to leukemic infiltrates
5. Clubbing deformity of fingers, due to pulmonary osteoarthropathy
6. Pulmonary emphysema and patchy fibrosis, cause undetermined
7. Focal pneumonitis and hemorrhage, acute.

REFERENCES

1. Morton, P. H.: Chronic, disseminated, nonlipoid reticuloendotheliosis (Histocytosis X): Treatment with corticotropin and antibiotics, with report of 2 cases. Ann. Int. Med., **47**:317-331, (Aug.) 1957.
2. Hamman, L., and Rich, A. R.: Acute diffuse interstitial fibrosis of lungs. Bull. Johns Hopkins Hosp., **74**:177-212, (Mar.) 1944.
3. Fienberg, R.: Pathergic granulomatosis (Editorial). Am. J. Med., **19**:829-831, (Dec.) 1955.
4. Rukavina, J. G., and others: Primary systemic amyloidosis; review and experimental, genetic and clinical study of 29 cases with particular emphasis on familial form. Medicine, **35**:239-334, (Sept.) 1956.

Annual Meeting of Iowa Thoracic Society

James F. Speers, M.D., of Des Moines, president of the Iowa Thoracic Society, invites all Iowa physicians to attend the hospitality hour, dinner and medical program of the organization's annual meeting, at Hotel Savery, Des Moines, on Wednesday, April 4.

The business meeting and election of officers and executive committee members will be held from 4 to 5:30 p.m. The hospitality hour will follow the business meeting, and a dinner will be served at 6:30. The medical program will begin at 7:30.

William R. Barclay, M.D., an associate professor of medicine at the University of Chicago College of Medicine, will discuss "Histoplasmosis." Harry E. Walkup, M.D., director of research for the American Thoracic Society, New York City, will present highlights of the United States Public Health Service chemoprophylaxis study, which is to be reported in full during April. Advance information on this study indicates that there will be significant recommendations for TB control programs involving physicians, health departments, and TB associations.

The chairman of the program committee is George N. Bedell, M.D., of Iowa City. Others on the committee are James E. Kelsey, M.D., and Ralph A. Dorner, M.D., both of Des Moines.

Acceptances should be sent to the Iowa Thoracic Society, 2124 Grand Avenue, Des Moines 12. Wives are invited.

Coming Meetings

IOWA

Mar. 15 — **Lederle Symposium.** Sheraton-Martin Hotel, Sioux City

Mar. 31 — **Orthopedic and Rehabilitation Seminar.** Younker Memorial Rehabilitation Center, Iowa Methodist Hospital, Des Moines

Apr. 6-8 — **Third Midwestern Sectional Meeting of the Biological Photographic Association.** Downtowner Motor Inn, Des Moines

Apr. 13-14 — **Pediatric Conference.** Raymond Blank Memorial Hospital, Des Moines

CONTINENTAL U. S.

Mar. 1-3 — **Conceptual Advances in Immunology and Oncology, Sixteenth Annual Symposium on Fundamental Cancer Research.** University of Texas M. D. Anderson Hospital and Tumor Institute, Houston

Mar. 2-3 — **Operable Heart Disease, Fourth Annual Conference.** Presbyterian Medical Center, San Francisco

Mar. 2-3 — **Proctology.** University of California, Los Angeles

Mar. 2-4 — **Annual Meeting of the American Society of Psychosomatic Dentistry and Medicine.** Shoreham Hotel, Washington, D. C.

Mar. 3 — **Coronary Arteriosclerosis.** Stanford University School of Medicine, Palo Alto, California

Mar. 3-4 — **Annual Meeting, New York Society of Internal Medicine.** New York City

Mar. 3-5 — **American Society of Facial Plastic Surgery.** New Orleans

Mar. 5-7 — **Anesthesia for Specialists.** Center for Continuation Study, University of Minnesota, Minneapolis

Mar. 5-7 — **Pediatrics Symposium.** University of Kansas School of Medicine, Kansas City, Kansas

Mar. 5-9 — **Gastroenterology (American College of Physicians).** University of Michigan Medical School, Ann Arbor

Mar. 5-9 — **Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago

Mar. 6-7 — **Southwestern Pediatric Society Spring Lecture Series.** Statler Hotel, Los Angeles

Mar. 7-8 — **Postgraduate Seminar on Diseases of Bone.** University of Missouri Medical Center, Columbia

Mar. 7-9 — **Management of Trauma.** University of Colorado Medical Center, Denver

Mar. 7-9 — **Pain Relief in Childbirth.** Cook County Graduate School of Medicine, Chicago

Mar. 8-10 — **Ocular Motility.** University of California, San Francisco

Mar. 10 — **Child Development (University of California, San Francisco).** Children's Hospital, San Francisco

Mar. 12 — **Spring Hospital Workshop Program (Kansas City Southwest Clinical Society).** Hospitals of Greater Kansas City

Mar. 12-14 — **Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago

Mar. 12-15 — **Twenty-fifth Annual Meeting of the New Orleans Graduate Medical Assembly.** Roosevelt Hotel, New Orleans

Mar. 12-15 — **Canadian-American Medical Ski Association.** Iroquois Mountain, Mission Hill Lodge, Brimley, Michigan

Mar. 12-16 — **Selected Subjects in Internal Medicine (American College of Physicians).** University of Chicago Clinics, Chicago

Mar. 12-23 — **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

Mar. 13-15 — **Loma Linda University School of Medicine Alumni Postgraduate Convention.** Ambassador Hotel, Los Angeles

Mar. 14 — **Lederle Symposium.** Lee Jackson Hotel, Winchester, Virginia

Mar. 14-18 — **Diagnostic Radiology.** University of California, San Francisco

Mar. 15-16 — **Infectious Diseases.** University of Nebraska College of Medicine, Omaha

Mar. 15-17 — **Clinical Symposium, Surgery of the Neck.** Cook County Graduate School of Medicine, Chicago

Mar. 15-17 — **Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago

Mar. 15-17 — **Tenth Annual Cancer Seminar of the Arizona Division of the American Cancer Society.** Westward Ho Hotel, Phoenix

Mar. 16-17 — **Treatment of Traumatic Injuries.** Center for Continuation Study, University of Minnesota, Minneapolis

Mar. 17 — **Special Surgery of the Extremities.** Presbyterian Medical Center, San Francisco

Mar. 18-21 — **Missouri State Medical Association.** St. Louis

Mar. 18-22 — **International Anesthesia Research Society.** The Americana, Bal Harbour, Florida

Mar. 19-23 — **Advances in Surgery.** Cook County Graduate School of Medicine, Chicago

Mar. 19-23 — **Basic Electrocardiography.** Cook County Graduate School of Medicine, Chicago

Mar. 19-30 — **Obstetrics and Gynecology.** Harvard Medical School, Boston

Mar. 19-21 — **Dallas Southern Clinical Society Spring Clinical Conference.** Statler Hotel, Dallas

Mar. 20-22 — **Pre- and Postoperative Care.** Medical College of Georgia, Augusta

Mar. 20-22 — **National Health Forum.** Pick-Carter Hotel, Cleveland

Mar. 20-23 — **American Association of Anatomists.** Minneapolis

Mar. 21-24 — **Neurosurgical Society of America.** Buena Vista Hotel, Biloxi, Mississippi

Mar. 21-24 — **Thirty-ninth Annual Meeting of the American Orthopsychiatric Association.** Biltmore Hotel, Los Angeles

Mar. 22-23 — **The Heart: Cardiac Arrhythmias Symposium.** University of Kansas School of Medicine, Kansas City, Kansas

Mar. 22-23 — **International College of Applied Nutrition Annual Convention.** Huntington-Sheraton Hotel, Pasadena, California

Mar. 24 — **Conference on Emergencies.** Presbyterian Medical Center, San Francisco

Mar. 24-26 — **Skin and Internal Disorders.** Stanford University School of Medicine, Palo Alto

Mar. 26-28 — **Clinical Reviews.** Mayo Clinic and Mayo Foundation, Rochester, Minnesota

Mar. 26-30 — **Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

Mar. 26-30 — **Treatment of Varicose Veins.** Cook County Graduate School of Medicine, Chicago

Mar. 26-30 — **Vaginal Approach in Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Mar. 26-Apr. 6 — **Basic Internal Medicine.** Cook County Graduate School of Medicine, Chicago

Mar. 26-Apr. 7 — **Techniques in Application of Cardiovascular Disease.** Scripps Clinic and Research Foundation, La Jolla, California

Mar. 27-28 — **Fractures in Children (University of Southern California).** Los Angeles Orthopaedic Hospital

Mar. 28-31 — **American Dermatological Association, Inc.** (Members Only) San Marcos Hotel, Chandler, Arizona

Mar. 29-31 — **Cardiac Drugs.** University of California, San Francisco

Mar. 30-Apr. 1 — **Hypothermia.** University of California, Los Angeles

Mar. 30-Apr. 1 — **American Society for the Study of Sterility.** Drake Hotel, Chicago

Mar. 31-Apr. 1 — **American Psychosomatic Society.** Sheraton Hotel, Rochester, New York

Apr. 1-6 — **American College of Allergists Graduate Instructional Course and 18th Annual Congress.** Hotel Radisson, Minneapolis

Apr. 2-4 — **American Radium Society.** Waldorf-Astoria Hotel, New York City

Apr. 2-4 — **Clinical Reviews.** Mayo Clinic and Mayo Foundation, Rochester, Minnesota

Apr. 2-4 — **Ophthalmology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 2-5 — **American College of Obstetricians and Gynecologists.** Palmer House, Chicago

Apr. 2-6 — **Clinical Congress of Abdominal Surgeons.** Chicago

Apr. 2-6 — **Thirty-fifth Annual Spring Congress in Ophthalmology and Otolaryngology and Allied Specialties (Gill Memorial Eye, Ear and Throat Hospital).** Patrick Henry Hotel, Roanoke, Virginia

Apr. 4-6 **Otorhinolaryngology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 4-7 **U.S.P.H.S. Clinical Society.** Clinical Center, National Institutes of Health, Bethesda, Maryland

Apr. 5-7 **Water, Salts and Steroids.** University of California, San Francisco

Apr. 5-7 **Current Concepts of the Physiology of the Endocrines, Electrolytes and the Kidney.** (American College of Physicians in conjunction with the American Physiologic Society), University of Pennsylvania, Philadelphia

Apr. 5-7 **Clinical Symposium: Surgery of the Newborn.** Cook County Graduate School of Medicine, Chicago

Apr. 6-7 **Association of Clinical Scientists.** Sheraton-Chicago Hotel, Chicago

Apr. 6-8 **Annual Meeting of the American Society of Internal Medicine.** Benjamin Franklin Hotel, Philadelphia

Apr. 9-11 **Anesthesiology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 9-12 **Aerospace Medical Association.** Atlantic City

Apr. 9-12 **Fourteenth Annual Scientific Assembly of the American Academy of General Practice.** Las Vegas Convention Center, Las Vegas

Apr. 9-13 **Forty-Third Annual Session of the American College of Physicians.** Convention Hall and Bellevue-Stratford Hotel, Philadelphia

Apr. 10-12 **Industrial Medical Association.** Pick-Congress Hotel, Chicago

Apr. 12-14 **Otolaryngology for General Physicians.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 12-14 **Highlights of Modern Ophthalmology.** Presbyterian Medical Center, San Francisco

Apr. 13-14 **American Society for Artificial Internal Organs.** Hotel Claridge, Atlantic City, N. J.

Apr. 13-14 **Symposium on the Knee.** Harvard Medical School, Boston

Apr. 13-14 **Review of Advances in Surgery for G.P.'s.** Stanford University School of Medicine, Palo Alto, California

Apr. 13-15 **American Association for Cancer Research.** Chalfonte-Haddon Hall, Atlantic City, N. J.

Apr. 15-18 **California Medical Association Annual Session.** Fairmont Hotel, San Francisco

Apr. 15-21 **American Society for Experimental Pathology.** Atlantic City, N. J.

Apr. 16-18 **American Association for Thoracic Surgery.** Chase-Park Plaza Hotel, St. Louis

Apr. 16-18 **Internal Medicine for Internists.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 16-20 **American Society of Biological Chemists, Inc.** Atlantic City, N. J.

Apr. 22-24 **Spring Session of the American Academy of Pediatrics.** Statler-Hilton Hotel, Los Angeles

Apr. 23-25 **Pan American Congress of Gastroenterology.** Hotel Roosevelt, New York City

Apr. 23-25 **Fifteenth Annual Spring Meeting, West Virginia Academy of Ophthalmology and Otolaryngology.** Greenbrier Hotel, White Sulphur Springs, West Virginia

Apr. 23-28 **American Academy of Neurology.** Statler-Hilton Hotel, New York City

Apr. 24-25 **American Society for Gastrointestinal Endoscopy.** Roosevelt Hotel, New York City

Apr. 25-28 **American College Health Association.** Chicago

Apr. 25-28 **Sixth Postgraduate Course on Fractures and Other Trauma (Chicago Committee on Trauma of the American College of Surgeons).** John B. Murphy Memorial Auditorium, 50 East Erie Street, Chicago

Apr. 26-28 **General Surgery.** University of California, San Francisco

Apr. 26-28 **Surgery for Surgeons.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 26-28 **Clinical Symposium: The Problems of Aging.** Cook County Graduate School of Medicine, Chicago

Apr. 26-28 **American Gastroenterological Association.** Hotel Roosevelt, New York City

Apr. 28 **American Society for Clinical Nutrition.** Chalfonte Hotel, Atlantic City, N. J.

Apr. 29 **American Federation for Clinical Research.** Haddon Hall, Atlantic City, N. J.

Apr. 29-30 **American Otological Society, Inc.** Sheraton Dallas Hotel, Dallas

Apr. 29-May 2 **International Academy of Pathology and American Association of Pathologists and Bacteriologists.** Queen Elizabeth Hotel, Montreal, Canada

Apr. 30-May 1 **Society of Head and Neck Surgeons.** Queen Elizabeth Hotel, Montreal, Canada

Apr. 30-May 2 **Kansas Medical Society.** Town House Hotel, Kansas City, Kansas

Apr. 30-May 2 **Gynecology for General Physicians.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 30-May 2 **American Academy of Pediatrics** (Spring Meeting). Statler-Hilton, New York City

Apr. 30-May 3 **Nebraska State Medical Association.** Hotel Cornhusker, Lincoln, Nebraska

Apr. 30-May 3 **American Proctologic Society.** Deauville Hotel, Miami Beach

ABROAD

Apr. 8-29 **Clinical Postgraduate Program in Japan and Hong Kong (U.C.L.A.).** Contact: Thomas H. Sternberg, M.D., Asst. Dean, Department of Continuing Education in Medicine and Health Sciences, U.C.L.A. Medical Center, Los Angeles 24

Apr. 15-18 **Bahamas Medical Conference,** Nassau. Contact: Mr. Irwin N. Wechsler, Executive Director, P. O. Box 1454, Nassau, Bahamas

May **World Health Organization,** Palais de Nations, Geneva, Switzerland. Write: Secretary-General, World Health Organization, Palais de Nations, Geneva

May 3-6 **106th Annual Meeting of the Hawaii Medical Association,** Honolulu.

May 13-19 **World Congress of Gastroenterology,** Munich, Germany. Write: Medizinische Universitatsklinik, Krankenhausstrasse 12, Erlangen, Germany

May 14-18 **International Congress on Hormonal Steroids,** Milan, Italy. Professor L. Martini, Instituto de Farmacologia é Terapia, 21 Via A. del Sarto, Milan

May 21-July 9 **Medical Centers of Europe (University of Southern California).** Tuition: Part A. London, Stockholm, Copenhagen and Paris (May 21-June 15) $250; Part B. Italy (June 16-30) $150; Part C. Greece (June 30-July 9) $75. For information write: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Ave., Los Angeles 33

May 26-30 **International Congress for Hygiene and Preventive Medicine.** Vienna, Austria. Write: Med.-Rat Dr. Ernst Musil, Mariahilferstrasse 177, Vienna 15

June 16-21 **International Symposium on Enzymic Activity in the Central Nervous System,** Goteborg, Sweden. Write: Dr. A. Lowenthal, Institut Bunge, 59 rue Philippe Williot, Berchem-Antwerp, Belgium

July 30-Aug. 13 **Fifth Annual Refresher Course (University of Southern California).** Royal Hawaiian Hotel, Honolulu, and on *S. S. Matsonia.* Address: Phil R. Manning, M.D., Associate Dean Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Avenue, Los Angeles 33

Aug. 8-15 **International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York

Sept. 5-8 **International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany

Sept. **International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest

Sept. **Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London

Oct. 7-13 **World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.

Oct. **American Society of Plastic and Reconstructive Surgery,** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadhent, M.D., Secretary, 508 East South Temple, Salt Lake City

Editorials

National Poison Prevention Week

By act of Congress, the President of the United States has been authorized to designate the third week of March each year as National Poison Prevention Week. In this year, the first of this national preventive program, the campaign will take place from March 18 to 24. At a meeting of representatives of groups vitally concerned with this problem, it was decided to direct efforts this year toward the prevention of accidental poisonings in children under five years of age. In that age group, some 302,000 children suffer accidental poisoning each year.

The accidental poisoning of children is the result of thoughtlessness and carelessness, and not infrequently it is the result of ignorance of the toxic properties of many household remedies, cleansing agents, insecticides, cosmetic preparations, etc.

Everyone concerned with the health and welfare of children should give enthusiastic support to the national campaign for poison prevention. Information on accident and poison prevention should be disseminated to every home in the land. The family physician should play an active role, making a conscientious effort to further this cause. The prevention of accidental poisoning is fully as important as the prevention of disease.

Have You Informed Us of Your Change of Address?

Postal regulations on second class mail have become more stringent. Under a new ruling, we must pay ten cents per piece for undeliverable second class mail, but worst of all, if you don't happen to reside or practice at the *precise* mailing address which we have for you, your JOURNAL will not be delivered. We urge promptness on the part of all JOURNAL readers in notifying us of address changes!

The Diagnosing of Pulmonary Embolism

In 1959, Coon and Coller,[1] of the University of Michigan, reported that pulmonary emboli had been found in 606 out of a total of 4,391 complete autopsies—an incidence of 13.8 per cent. Pulmonary infarction was found in 58.7 per cent of those 606 cases of pulmonary embolism. The rather startling feature of that study was the fact that in only 7.1 per cent of the patients with autopsy-proved pulmonary emboli had a definite clinical diagnosis been made prior to death.

In this group of patients, there had been no signs or symptoms in 137 patients (27 per cent). Shortness of breath was the most common symptom, and was present in 291 cases. Shock occurred in 138 patients. Chest pain was a symptom in 110, and hemoptysis occurred in 54 patients. Physical findings indicative of embolism were demonstrated in 29 individuals (6 per cent). The authors concluded that there are no specific diagnostic signs in pulmonary embolism, and on the basis of this study they decided that venous thrombosis is diagnosed correctly even less often than is pulmonary embolism.

In reviewing the clinical features of 72 patients with pulmonary embolism, Barritt and Jordan,[2] of the Bristol Royal Hospital, pointed out that pulmonary embolism with infarction was one of the commonest acute chest conditions met in hospital practice, and that confirmation of the diagnosis was often difficult. The detection of pulmonary emboli depended upon the correct interpretation of symptoms, signs, electrocardiograms and bedside roentgenograms. In contrast to the report by Coon and Coller, in which infarction was reported as having occurred in a little over half of the cases, the British study indicated that infarction was present in a considerable majority of the patients.

The British authors were of the opinion that the onset of pulmonary embolism was often obvious from the temperature chart. A characteristic patient, after a brief period of slight fever suggesting venous thrombosis, became afebrile and then, after a variable period, experienced a brisk rise in pulse rate and then, after a few hours, a rise in fever. That sequence of events was particularly significant in postoperative patients, who were often afebrile for a day or two after surgery, and had begun to recover when tachycardia and fever reappeared. In this group of 72 patients, 18 experienced faintness; 12 had substernal pain; 58 had episodes of breathlessness without chest pain; and 31 had hemoptysis. Hypotension occurred in 30 patients, and was attributed to a fall in left ventricular output as a result of massive embolism. Faintness, substernal pain and breathlessness suggested pulmonary infarction.

The substernal pain resembled the pain of myocardial ischemia, but the pain was less severe and not so long-lasting. Pleural pain and hemoptysis,

which were considered to be symptoms of infarction, were accompanied by a fall in blood pressure only when massive embolism had taken place. Tachycardia was a common finding, arrhythmia occurred frequently, and atrial fibrillation was found in 13 patients. A rise in jugular venous pressure was the most common sign of pulmonary embolism, as shown by the distended neck veins. Hypotension occurred in 20 patients. Auscultation of the heart was of little help in diagnosis. Cyanosis and pallor occurred in massive embolism.

In cases with pulmonary infarction, the breathing was rapid and shallow because of pleural pain. Rales were present at the lung bases in all but eight patients, and those eight all had massive embolism with infarction. A pleural friction rub was heard in 21 of 58 patients who had pleural pain. Long dullness was elicited in 48 of the group. Bronchial breathing was uncommon, for it was heard in only two patients with massive embolism.

Examination of the legs in these patients revealed nothing abnormal in 16 of them, but 32 had tenderness of the calf on squeezing, 10 had superficial thrombophlebitis, 17 had varicose veins, and 4 had fractured legs in plaster. The electrocardiogram was of value in about half of the cases, particularly in those patients who had a rise in venous pressure and a fall in systemic blood pressure, together with other features that suggested massive embolism. Bedside x-ray showed positive findings in 45 patients, and was normal in 16.

It was the feeling of the British authors that an awareness of the disease, a careful history, the alteration in the clinical chart, physical findings consistent with thrombophlebitis or pulmonary embolism, electrocardiography and occasional roentgenograms of the chest represent the mainstays of diagnosis. Yet at best these measures often do no more than suggest the presence of hidden disease.

Goreham,[3] in a recent report, correlated the clinical records, the nurses' notes and the autopsy findings in 100 cases of massive pulmonary embolism among 5,700 autopsies at the New York Hospital. According to that pathologist, no disease is less frequently diagnosed than is embolism of the pulmonary artery, whether involving major or minor vessels. The major difficulty encountered was the differentiation of massive pulmonary embolism from myocardial infarction. Though pathologists have recognized the findings at postmortem for many years, the clinicians have failed to interpret correctly the symptoms produced by the underlying anatomic and physiologic changes. This situation is quite comparable to that of myocardial infarction before the picture was elucidated by Herrick in 1912. The electrocardiographic evidence of cor pulmonale in pulmonary embolism and the unusual clarity of the lung due to ischemia in chest roentgenograms in massive pulmonary embolism have helped to clarify the diagnosis. Insufficient attention has been given to the detection and evaluation of physical signs in the recognition of the condition.

According to Goreham, one of the commonest mistakes has arisen from the synonymous use of the terms *infarct* and *embolism*. "It is not often realized," he says, "that a large coiled embolus occluding either the main stem or both branches, or even occasionally a single major branch, does not of itself necessarily produce an infarct of the lung. As a rule, proper emphasis is not given to the fact that the presence or the absence of a pulmonary infarct depends on the size of the embolus, its consistency, the size of the vessel occluded, the presence or absence of pulmonary congestion, and the degree of obstruction produced. . . . In massive embolism, the lung parenchyma shows nothing abnormal, or at most moderate atelectasis and edema in some cases."

Confusion also results from the fact that in many patients who are dying of massive pulmonary embolism, small or even large areas of pulmonary infarction develop. In Goreham's series, 43 per cent of the patients were found to have such areas at postmortem. In contrast to massive embolism, the signs and symptoms of pulmonary infarction were less dramatic, and were produced by much smaller emboli that occluded lobar or sublobar branches of the pulmonary arteries. Not infrequently the lesion was silent, but in other patients it was characterized by axillary pain on deep breathing, bloody sputum, dullness, diminished breath sounds or tubular breathing, rales, and if an infarct extended to the pleura, a friction rub. In massive pulmonary embolism, the onset was sudden or apoplectic, with marked disturbance of breathing as the initial symptom, accompanied by pallor or cyanosis, shock, cardiac pain, a sharp drop in blood pressure, and a weak, thready pulse. Death usually occurred within five minutes to two hours after the dramatic onset of symptoms.

Because the signs and symptoms of massive pulmonary embolism and of myocardial infarction are often very similar, making the differential diagnosis extremely difficult, Goreham has presented 12 diagnostic clues, gathered from reports of cases in the American and European literature. One or more of those 12 have been described in individual cases, and they may help physicians to make the correct diagnosis of massive pulmonary embolism. The distention of the pulmonary artery gave rise to pulsation in the second left interspace, a marked accentuation of the second pulmonary sound, louder than the second aortic sound, and a pericardial friction rub located high in the left chest in the second or third interspace. A systolic murmur in the second left

interspace, a diastolic murmur in the same area, and an interscapular bruit have been attributed to a partial stenosis of the pulmonary artery caused by the embolus. The pulmonary hypertension has been considered the cause of recognizable signs: an increased cardiac dullness to the right of the sternum; increased venous pressure with distended neck veins; an enlarged liver; and a gallop rhythm best heard over the second and third left interspaces. A rare sign that has been described consists of a momentary red wave which appears to pass over the pallid, cyanotic face, and is thought to be caused by the breaking off of a part of the obstructing embolus, permitting an additional amount of oxygenated blood to pass through the lung to the left heart.

Walker and associates[4] recently emphasized that pulmonary embolism is the most common pulmonary disease seen in a general hospital, and that it is diagnosed accurately in no more than 20-50 per cent of cases, on the basis of the usual clinical, radiographic and electrocardiographic criteria. Pulmonary embolism is most frequently confused, they say, with myocardial infarction and with bronchopneumonia. This Boston group report that serial determinations of a triad of laboratory tests have contributed to the accuracy of diagnosis. The serum lactic dehydrogenase (LDH) was consistently elevated, the serum glutamic oxaloacetic transaminase (SGOT) was consistently normal in a series of 17 cases of pulmonary embolism with infarction, and the serum bilirubin was consistently increased in 11 of 15 patients in whom it was measured. The LDH usually reaches a maximum on the second day, and gradually falls to normal on the tenth day. The increase in bilirubin is detectable in most instances as early as the fourth day. In myocardial infarction, there is a simultaneous rise in both LDH and SGOT—a very helpful point in differentiating it from pulmonary embolism. According to the authors, "The diagnostic triad permits the diagnosis of pulmonary embolization to be made promptly and with greater accuracy than has been previously possible."

Obviously, pulmonary embolism and infarction are very common, and with the increase in the numbers of people over 65 years of age, it is reasonable that the incidence will grow. Diagnostic accuracy in teaching hospitals varies from 20 to 50 per cent. The commonest diagnostic error is confusion of pulmonary embolism and infarction with myocardial infarction. Early, accurate diagnosis of pulmonary embolism and infarction are important in order that immediate treatment may be instituted and in order that further, possibly lethal, emboli may be prevented. The accurate diagnosis of massive pulmonary embolus is probably of no more than academic importance, for the most part, but the clinician who prides himself on his diagnostic acumen is considerably chagrined when a pathologist proves him wrong.

REFERENCES

1. Coon, W. W., and Coller, F. A.: Clinicopathologic correlation in thromboembolism. Surg., Gynec. & Obst., **109**:259-268, (Sept.) 1959.
2. Barritt, D. W., and Jordan, S. C.: Clinical features of pulmonary embolism. Lancet, **1**:729-732, (Apr. 8) 1961.
3. Goreham, L. W.: Study of pulmonary embolism: I. Clinicalpathologic investigation of 100 cases of massive embolism of pulmonary artery; diagnosis by physical signs and differentiation from acute myocardial infarction. Arch. Int. Med., **108**:8-22, (July) 1961.
4. Wacker, W. E. C., Rosenthal, M., Snodgrass, P. J., and Amador, E.: Triad for diagnosis of pulmonary embolism and infarction. J.A.M.A., **178**:8-13, (Oct. 7) 1961.

Penicillin Hazards

Penicillin has been in use for 20 years, and has proved to be the most effective and least toxic of the antibiotics. However, the drug has also proved to be the most allergenic and most productive of serious or even fatal hypersensitivity reactions. A recent article by Harrison F. Flippin,* professor of clinical microbiology at the University of Pennsylvania, has discussed the adverse reactions, the proper use and the precautions that must be observed in the use of penicillin, and his presentation is so effective that we feel it should be made available to the physicians of Iowa, as well as to those of his own state.

It has not been demonstrated that penicillin, a non-protein drug, is in itself antigenic, but it is thought that *in vivo* it combines with normal body proteins to form a complex antigen that is capable of antigen formation and sensitization. The wide use of penicillin in nasal drops, sprays, creams and ointments, and oral capsules, and administration by the intramuscular route have sensitized a very large share of the American people. The use of penicillin by veterinarians in the treatment of bovine mastitis has provided another route of sensitization. The true incidence of penicillin sensitivity is unknown, but there is no doubt that it is increasing every year.

Fundamentally, there are four types of allergic reactions to penicillin. The most important and most serious of them is the anaphylactic or anaphylactoid type, which produces circulatory collapse a few seconds, or at most a few minutes, after injection or ingestion. This dramatic and alarming reaction produces death in approximately 10 per cent of cases, or asthma and urticaria and angioneurotic edema develop.

A second type of reaction is the delayed one, which appears from seven to 10 days after the administration of the drug. It is manifested by fever, malaise, urticaria, and joint and muscle pains. Purpura, erythema multiforme or exfoliative dermatitis may occur. Rarely, a serious and widespread necrotizing arteritis or periarteritis nodosa has resulted. A third type of delayed contact der-

* Flippin, H. F.: Penicillin 'fallout.' PENNSYLVANIA M.J., **64**:1578-1581, (Dec.) 1961.

matitis is seen occasionally in individuals who have been exposed to penicillin in ointments, sprays or powders, or who have participated in the manufacture of the drug. A fourth type consists of a flare-up of a preexisting infection due to related fungi—the so-called ID reaction.

Repeated or prolonged exposure to the drug predisposes to hypersensitivity. Oral administration is much less likely to induce hypersensitivity than is injecton of the drug, for it is absorbed much more slowly from the gastrointestinal tract. The injection of penicillin in material designed to delay absorption promotes the development of antibody and of allergic reactions. Patients with atopic disease are much more likely to develop allergic reactions and are made more seriously ill by them, than are other people.

The detection of patients who will react to penicillin is difficult. A personal or family history of allergy, or previous administration of penicillin, particularly in atopic individuals, should put the physician on his guard. A previous reaction to the drug probably indicates that the patient will react again, and that the reaction will be more severe. Unfortunately, a history will not reveal sensitization from the administration of penicillin in contaminated syringes, from vaccines containing minute amounts of the drug, or from the ingestion of milk and milk products containing the antibiotic.

Dr. Flippin does not have much confidence in the skin tests for sensitivity to penicillin, except in patients who have had previous topical applications of the drug, in which case the drug will react on contact. He cautions that the patch test may result in a serious systemic reaction in a hypersensitive patient. The testing of patients who have had a previous reaction to penicillin is dangerous and, as a general rule, should not be done. Rather reluctantly, he agrees that proper testing appears to be safer than a full therapeutic dose of penicillin without testing, and that it may reduce the occurrence of serious or fatal anaphylactic reactions. It would appear, however, that this recommendation is suggested for medicolegal reasons, rather than from confidence in the merits of the test.

Dr. Flippin clearly defines the measures that should be employed to prevent penicillin hypersensitivity:

1. Penicillin should be used only when indicated.

2. Extra care should be used in atopic individuals.

3. Oral penicillin should be used, except in infections of the blood stream, endocardium, meninges, etc. After oral penicillin, the patient should be watched for a minimum of 30 minutes, since all reactions to oral penicillin have occurred within that length of time.

4. *The administration of injectable penicillin should, for the most part, be limited to the treatment of hospitalized patients. There are very few exceptions to this rule.*

5. When penicillin is injected, it should be given in the arm, and low enough so that a tourniquet can be applied if necessary, and the patient should be carefully observed for at least 20 minutes following the injection.

6. A patient who gives a history of any sort of reaction to penicillin, even though it be questionable, should not receive the drug. Another suitable agent should be substituted. The use of another brand of the drug or of a so-called hypoallergic or synthetic preparation is hazardous. Antihistamines given concurrently with penicillin have proved ineffective, and may mask warning signals of impending trouble.

7. If penicillin remains the only drug that can be used in the treatment of a disease in a hypersensitive patient, a calculated risk must be taken. However, there are few diseases in which penicillin is the only drug that can be used effectively. A skin test *must* be done, even though it may have no more than a medicolegal value. Ordinarily, in such a case, oral administration is impracticable, and the drug is given subcutaneously, in gradually increasing amounts, every 15 minutes, until a therapeutic level has been reached. The patients should first be protected by epinepherine and possibly by adrenocorticosteroids.

The treatment of the immediate anaphylactic reaction consists of applying a tourniquet proximal to the site of injection. Epinephrine should be given intravenously until blood pressure levels have been restored and are maintained. Though antihistamines are ineffective in prophylaxis, they are given to minimize the further release of histamine. ACTH or adrenocorticosterones are recommended to assure the effectiveness of the treatment already given. Penicillinase is of questionable value, and there is a possibility of anaphylaxis associated with its use. Delayed hypersensitivity usually responds to treatment with antihistamines, but in the more severe and persistent reactions, the adrenocorticosteroids are helpful.

Though penicillin is the most potent antimicrobial available for the treatment of many infections, the physician must constantly keep in mind the hazard of a hypersensitivity reaction after the administration of the drug. Like many other drugs, penicillin cannot be used without some degree of risk. *It is the duty of every physician to reduce that risk to a minimum by exercising proper precautionary measures, and by giving the drug only when necessary.*

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Prostatectomy Routes

It has happened rather frequently, in medicine, that a new technic of therapy has almost completely supplanted a successful mode of treatment that had been widely used for many years, and then that the older method has gradually returned to popularity. A recent article by Thomas E. Gibson,* an assistant professor of urology at the University of California School of Medicine, suggests that a phenomenon of this sort is occurring in surgery. Perhaps there is a swing back to suprapubic prostatectomy as the method of choice, after a long period in which transurethral resection was in the ascendancy.

Dr. Gibson relates that, having been trained by an enthusiast for perineal prostatectomy, he did that type of operation exclusively for median bars, vesical-neck contractures and obstructive prostatic cancer not amenable to radical removal. Subsequently, he learned to do suprapubic prostatectomies and looked upon them with increasing favor, since they were easier to do and posed less hazard of urethral-sphincter and rectal injury. After the introduction of the resectoscope, transurethral prostatectomy became the popular method, and the author says he treated about 90 per cent of bladder-neck obstructions in that manner. As his experience with transurethral resection increased, however, his enthusiasm for the technic waned because of certain morbidity factors and the necessity for reoperation after several years, particularly in cases of adenomatous hyperplasia.

After years of experience with various methods of treatment, Gibson now employs transurethral resection in approximately 30 per cent of bladder-neck obstructions. He uses it only in cases of obstruction from median bars, small hyperplasias, vesical-neck contractures, certain neurogenic bladder disturbances, and obstructing prostatic cancer not amenable to radical removal. Suprapubic prostatectomy, he performs in about 60 per cent of the cases, limiting the operation to benign glandular hyperplasias which by their very nature are easily enucleable. Perineal prostatectomy, he does in about 10 per cent of the cases, where it is indicated by the gross obesity of the patient, by a suspicion of prostatic cancer, or by extensive calculus disease of the gland. He is opposed to the retropubic prostatectomy because it invades the space of Retzius and creates a hazard of serious infection.

As Gibson describes it, the modern technic of suprapubic prostatectomy is a relatively brief and uncomplicated operation. There is very little bleeding, and packs and hemostatic bags are unnecessary. Fewer than 10 per cent of patients require a unit of blood postoperatively. A large caliber suprapubic tube is removed after 24 hours. A Foley 24F retention catheter with a 30 cc. bag is left in place, and is usually removed on the sixth or seventh day. The entire operation, he says, should not require more than 15 to 30 minutes. Ordinarily, the wound heals *per primam,* and urinary leakage above seldom occurs. Not only is the operation quick and easy to do, but the patients are happy because the results are uniformly good. The mortality for suprapubic prostatectomy has been 1.62 per cent, in his experience, whereas for transurethral resection it has been 1.88 per cent.

It would appear that transurethral resection does not provide a complete solution to the problem of prostatic obstruction, and that the suprapubic operation is regaining favor for the correction of this condition.

* Gibson, T. E.: Progress in prostatectomy. J. LOUISIANA M. SOC., **113**:495-501, (Dec.) 1961.

Orthopedic and Rehabilitation Seminar

Younker Memorial Rehabilitation Center, Iowa Methodist Hospital, Des Moines

Saturday, March 31, 1962

10:05 a.m. "Fractures of the Hip"—Carroll B. Larson, M.D., head of the Department of Orthopedic Surgery, S.U.I.

11:00 "Tenosynovitis of the Hand and Wrist"—Paul R. Lipscomb, M.D., consultant in orthopedic surgery at the Mayo Clinic, and associate professor of surgery, University of Minnesota

12:00 m. "Fractures of the Hand"—L. D. Howard, Jr., M.D., Stanford University School of Medicine

1:00 p.m. LUNCH

2:00 "Fractures of the Humerus"—Marcus J. Stewart, M.D., associate professor of orthopedic surgery, University of Tennessee

3:00 "The Use of Physical Medicine in Office Practice: Post-fracture Therapeutic Measures"—G. Keith Stillwell, M.D., consultant in physical medicine and rehabilitation, Mayo Clinic, and assistant professor of physical medicine and rehabilitation, University of Minnesota

4:00 DEMONSTRATION: PREVENTION OF DEFORMITY IN THE STROKE PATIENT
W. D. DeGravelles, Jr., M.D., and staff members of the Younker Memorial Rehabilitation Center

4:30 TOUR OF YOUNKER MEMORIAL REHABILITATION CENTER

A discussion period will follow each presentation.

President's Page

I happened to be joking with an 89-year-old patient of mine about the number and variety of accessories that he must lay aside at night, and he responded by reciting these verses that he had composed:

That old age is golden, I've often heard said,
But sometimes I wonder, when ready for bed,
With eyes on the table, my teeth in a cup,
And ears on the dresser till time to get up.
Awaiting sweet slumber, I ask of myself,
"Are any more spares to be put on the shelf?"

My hair is so thin it will never stay put;
My shoes are much smaller than swell of my foot;
My clothes wrinkle badly; I slump in my seat;
My tongue wobbles madly, and so do my feet.
I fall from my bed, and I fall on the floor;
With hip badly shattered, I holler for more.

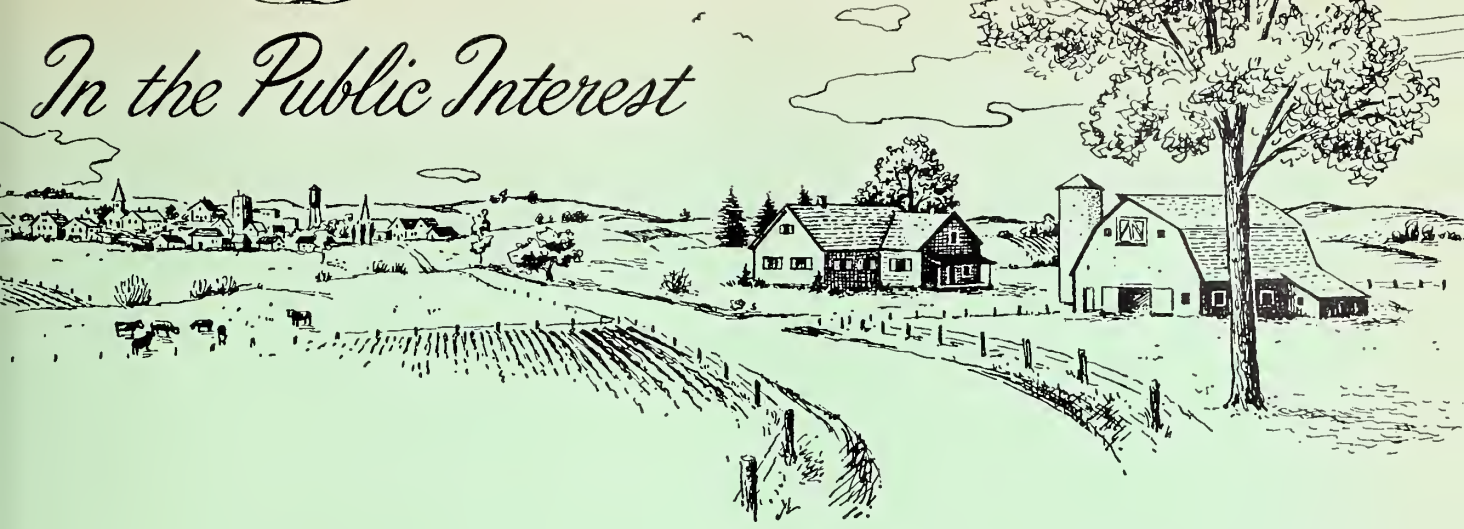
But I really don't mind, for—

I'm forced to conclude, whatever my due,
Life still is worth living. At age eighty-two
I toddle along, quite content with my pills,
In zest of right living, forgetting life's ills.

—C. W. Wakeman, 1955

President

In the Public Interest



The King-Anderson Bill Must Be Kept From Passage

The King-Anderson Bill, a proposal before the current session of Congress, would make all recipients of Social Security benefits eligible for generous amounts of hospitalization and nursing-home care, completely regardless of their ability to pay for those attentions. Thus, it would help many people who need no assistance and constitute a prodigal waste of public money. It is the latest attempt—and quite possibly the last—to bring health care under the direct control of the federal government. Many well-informed people are convinced that if this measure fails of adoption, the long battle in defense of the American system of private health care will have been won.

In other words, 1962 is the crucial year. Now is the time for greatest effort by everyone who cherishes private enterprise and individual liberties. Each of us must make sure that his congressman and senators are aware of his wishes.

SCHEMES TO BRING A VOTE ON KING-ANDERSON

The proponents of the King-Anderson Bill are, for the most part, the same people who sought the passage of the Wagner-Murray-Dingell Bill ten or more years ago, and of the Forand Bill two years ago. The King-Anderson scheme proposes only hospital and nursing-home care under Social Security because its sponsors want it to seem that physicians would be unaffected by such a measure and thus can have no reason for opposing it. But its adoption would be an opening wedge.

The King-Anderson Bill has been referred to the House Ways and Means Committee, and in its present form it seems likely to go no farther along the ordinary road toward passage, since the chairman, Representative Wilbur Mills (D., Ark.) and about half of the other members of the Committee oppose it. But several devices for by-passing the House Ways and Means Committee are being considered. Pressures of various sorts are being put upon Mr. Mills to get him to let his Committee discharge the Bill; there is a chance that sufficient numbers of representatives can be persuaded to sign a petition for the House to vote on the measure without the Committee's approval; or an amendment embodying the major provisions of the Bill may be attached in the Senate to any of several measures that the House will have passed, in which case it is supposed that the House might be virtually compelled to concur.

At the moment, the last of these alternatives seems most likely to be tried, but its chances of success aren't too bright. The Constitution gives the House of Representatives the exclusive right to originate all appropriations measures, and though the procedure just outlined might technically be constitutional, it would be sure to meet the opposition not only from representatives who oppose the inclusion of health care under Social Security but also from many of them who are intent upon preserving an important prerogative of the House.

KERR-MILLS PROGRAMS ARE SUCCEEDING

Mr. Mills and the rest of us who oppose providing health care to all Social Security beneficiaries believe that government assistance to elderly people in meeting the cost of illness can most fairly and equitably be given through the Kerr-Mills Act, a measure that Congress passed during the fall of 1960. Under it, federal funds are provided to the states in matching grants for the support of whatever programs the states choose to set up for the needy and near-needy aged.

As of December, 1961, 28 states and three U. S. possessions had passed Medical Assistance for the Aged legislation, and three other states, whose legislatures still remained in session, were considering the enactment of such laws. Twenty-one programs were already in operation. Some other states had improved their programs for medical aid to the strictly indigent, and thus a total of 42 states and possessions had taken steps, by that time, to avail themselves of the assistance offered under the Kerr-Mills Act.

Iowa is one of a small number of states where Kerr-Mills enabling acts were passed but no state funds were appropriated to help the near-needy pay their health-care costs. The legislatures of those states acted in good faith, intending to put

such programs into operation within a year or two. But a few legislatures refused to act, hoping that the adoption of the King-Anderson Bill or another similar measure at the national level would take the responsibility off their hands, and a few legislatures passed Kerr-Mills enabling acts but simultaneously memorialized Congress of their desire for health care to the aged under Social Security.

West Virginia was one of the group of states last referred to, and presumably in an attempt to support the legislature's point of view, the West Virginia commissioner of public welfare seems to have attempted wrecking his Kerr-Mills program. NEWSWEEK reported a few weeks ago that after 14 months of operation, the West Virginia program had paid claims totaling $3,674,363, had unpaid bills of $1,500,00, and had incurred administrative expenses of $350,000. The report said that the commissioner, a Mr. Smith, had announced that he was cutting the number of eligibles in half, was reducing pay for doctors' visits from $3 to $2 each, was cutting hospital payments from $35 to $20 per day, and was limiting prescription costs to the wholesale price plus $1 each for a handling charge.

Mr. Smith also had attempted to put the doctors and hospitals in a bad light by reporting that all but 132 of the 1,800 physicians, and all but 23 of the 108 hospitals in that state "quit the program" when he announced his cuts in compensation.

The facts however, are these:

1. The eligibility standards with which West Virginia started its program of Medical Aid to the Aged had been ridiculously liberal, and the welfare workers had campaigned to get people to qualify for the benefits.

2. The original fee of $3 per visit for doctors' calls had been only 75 per cent of the Blue Shield allowance, and the cut to $2 was just one of the reductions that doctors were asked to accept. No more than $40 was to be paid for any type of surgery.

3. The average hospitalization cost for which the West Virginia welfare department had been paying was $20.58 per patient-day, rather than the $35 per day that had been mentioned in NEWSWEEK.

4. The per-patient cost of the program had not snowballed during the 14 months that preceded the issuance of Mr. Smith's ultimatum. In January, 1961, the figure was $77, and in June, 1961, for example, it had fallen to $64.

5. Until his well-publicized decision in December, Mr. Smith had made no attempt to limit eligibility, though the West Virginia legislature had given him considerable latitude in setting the qualifications, ruling only that recipients might have annual incomes of no more than $1,500 per couple.

6. No hospital or doctor actually quit the West Virginia program. When Mr. Smith made his announcement, he asked hospitals and doctors to reenlist, accepting the reduced fees. Understandably, few of them made haste to accept his invitation, but they continued providing care to everyone, just as they used to do, in return for whatever the patients could reasonably pay. Belatedly, the West Virginia state welfare department negotiated with the hospital and physician groups, agreements were reached, net-worth requirements for eligibility were stiffened realistically, and the program stayed solvent through the remaining few weeks of 1961. Now the legislature has voted adequate funds for its continuance.

The foregoing statements should demonstrate that Kerr-Mills implementations can succeed, despite the efforts of unfriendly administrators and in states worst affected by chronic recession.

BROADENING OF PRIVATE INSURANCE PROGRAMS

For elderly people who are marginally capable of financing their own health care, Iowa Blue Shield and Blue Cross began offering their "Senior-65" plan nearly three years ago. Under it, 6,000 elderly Iowans having incomes no greater than $2,000 per year and net worths no greater than $20,000 are guaranteed 30 days' hospitalization per admission and whatever they need in the way of surgery and inpatient medical care for a premium of $6.35 per month.* To make that plan possible, Iowa physicians have been accepting 60 per cent of their standard fees as full payment for their services.

On January 18, 1962, National Blue Shield announced a similar arrangement to provide surgery and inpatient medical care for marginally self-sufficient old people all over the country. They are eligible provided that their incomes are no larger than $2,500 for a single person or $4,000 for a couple. Since Iowa Blue Shield already offers an equally good plan, the national arrangement may be offered only in other parts of the country. At about the same time, National Blue Cross announced its national plan, but suggested—mistakenly, most physicians think—that the federal government could undertake to subsidize it by whatever means it might choose. In consequence, perhaps, of guaranteeing too long a period of hospitalization per admission, and in the expectation that Uncle Sam would help pay the bills, National Blue Cross seems to have made its offer to elderly people disproportionately expensive. There remains a good possibility, however, that the two organizations can reach an agreement on a joint nationwide arrangement resembling that which their respective subsidiaries in Iowa are already offering.

SUMMARY

The King-Anderson proposal, like its predecessors the Wagner-Murray-Dingell Bill and the Forand Bill, not only would add to the total cost of health care, but would jeopardize essential liberties of all Americans quite needlessly. Instead, each of us must do his best to see to it that the Kerr-Mills Act and the non-governmental health-insurance plans are utilized fully in providing for the health needs of the elderly.

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* No more than $3,000 income and $30,000 net worth are the requirements for a married couple.

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

TEXTBOOK OF ENDOCRINOLOGY, THIRD EDITION, by *Robert H. Williams*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $21.00).

ATLAS OF CLINICAL ENDOCRINOLOGY, SECOND EDITION, by *H. Lisser*, M.D., and *Roberto F. Escamilla*, M.D. (St. Louis, The C. V. Mosby Co., 1962. $23.00).

THALASSEMIA: A SURVEY OF SOME ASPECTS, by *Robin M. Bannerman*, M.A., D.M., M.R.C.P. (New York, Grune & Stratton, Inc., 1962. $6.50).

POSTPARTUM PSYCHIATRIC PROBLEMS, by *James Alexander Hamilton*, M.D. (St. Louis, The C. V. Mosby Co., 1962. $6.85).

THE SCIENCE OF DREAMS, AN ANALYSIS OF WHAT YOU DREAM AND WHY, by *Edwin Diamond*. (New York, Doubleday & Co., Inc., 1962. $4.50).

CARCINOMA OF THE CERVIX, by *John B. Graham*, M.D., *Luciano S. J. Sotto*, M.D., and *Frank P. Paloucek*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $14.00).

COMMON SENSE ABOUT PSYCHOANALYSIS, by *Rudolph Wittenberg*. (New York, Doubleday & Co., Inc., 1962. $3.95).

IRRITATION AND COUNTER-IRRITATION, by *Adolphe D. Jonas*, M.D. (New York, Vantage Press, Inc., 1962. $7.50).

BOOK REVIEWS

THE PHYSIOLOGY AND PATHOLOGY OF LEUKOCYTES, ed. by *Herbert Braunsteiner*, M.D. (American edition prepared and revised by *Dorothea Zucker-Franklin*, M.D.). (New York, Grune & Stratton, Inc., 1962. $15.00).

Numerous contributors have brought together a large body of fragmentary information relative to the normal and abnormal physiology of leukocytes. In this American edition, some phases of the subjects have been omitted because American texts have already treated them adequately. The chapters to which I refer are those concerning the reticulo-endothelial system and regulation of cells in the peripheral blood.

This book is definitely for the person who wishes to "go the second mile" on the subject of leukocyte function. It records factual data as well as theory in a poorly understood field.

In addition to data on the usual circulating leukocytes, there are discussions of plasma cells and mast cells, since they are regarded as having close relationships with leukocytes.

Of interest to certain parties are chapters on radiation injury, leukocyte antibodies including the L.E. phenomenon, nuclear sex patterns, transplantation of hematopoietic cells, hereditary anomalies of granulocytes, the life span of leukocytes, and the leukemia-virus problem.

The book will be of value to teaching-hospital libraries and to those physicians who have a special interest in hematology.—*David Baridon, Jr.*, M.D.

PSYCHIATRY—BIOLOGICAL AND SOCIAL, by *Ian Gregory*, M.D. (Philadelphia, W. B. Saunders Company, 1961. $10.00).

This carefully prepared work is a textbook of psychiatry that should appeal especially to those interested in the methodology of psychiatric research.

The author adheres faithfully to his stated aim—to present his material in a scientific, well-organized manner, avoiding esoteric language, defining his terms, and attempting to distinguish clearly between speculation and reasonable probability.

He obviously is very well informed in genetics, and deals rather extensively with the genetic factors in psychiatry. But in spite of his interest in that field, he keeps its etiologic role in proper perspective, and attempts to integrate it with other causal agents—psychological, sociological and cultural. His treatment of the application of eugenic principles in the prevention of psychiatric disorders is penetrating and scholarly, as is his entire chapter "Causation and Primary Prevention."

The first chapter of the book should be of special interest to the non-psychiatrist physician. It contains an excellent, concise and unbiased presentation of the various theoretical orientations in psychiatry, and of the ways in which those orientations affect the practices of psychiatrists espousing various ones of them.

This book is intended to be holistic and eclectic, but it is doubtful that it achieves a truly holistic synthesis because of its emphasis on the measurable data arrived at by strictly scientific and statistical means, as distinguished from observations and hypotheses based on clinical experience and integrated with physiological and philosophical considerations. In the biological field, genetic considerations receive much closer attention than the biochemical or neurophysiological. In the social area there is a preponderance of measurables. For example, the incidence and distribution of clinical entities in various socio-economic levels of society receive more emphasis than do the more intangible factors such as the intricacies of the individual's interpersonal relations and the intrapsychic conflicts that they engender. On the whole, this textbook deals more with generalizations than with the individual psychiatric patient and his losing struggle to adjust. This is exemplified by the paucity of case material.

The book will find a more receptive audience among the research-minded, especially those interested in research methodology as applied to the field of psychiatry, than among clinicians looking for hints as to how they can best help their patients with emotional, behavioral or mental aberrations.—*Thomas P. Board*, M.D.

INTRODUCTION TO ANESTHESIA: THE PRINCIPLES OF SAFE PRACTICE, by *Robert D. Dripps,* M.D., *James E. Eckenhoff,* M.D., and *Leroy D. Vandam,* M.D. (Philadelphia, W. B. Saunders Company, 1961. $8.00).

As its name implies, this book is an introduction to anesthesia, and the fundamental principles and practices are dealt with in detail. I feel that the book is well written and easy to read. Such phases of anesthesia as pre-anesthetic medication, fundamentals of inhalation, local and spinal anesthesia, the technic of intubation, and muscle relaxants are discussed in detail, as are some of the complications of anesthesia such as hypotension, lung injuries, injuries to the nerves, *et cetera.* Some space has also been devoted to some of the more recent adjuncts of anesthesia such as hypothermia, external cardiac resuscitation, management of coma, oxygen therapy and mechanical ventilators.

I feel that this book is of interest to all anesthesiologists, but more specifically to students of anesthesiology.—*Harold L. Klocksiem,* M.D.

EYE SYMPTOMS IN BRAIN TUMORS, by *Alfred Huber,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $16.00).

This scholarly presentation is enhanced by the depth of the author's knowledge of neurology and ophthalmology. He presents the subject in detail, and shows the correlation of anatomy, physiology and pathology with the clinical history and findings.

The volume is replete with excellent illustrations, and contains an almost encyclopedic bibliography. It will enhance the armamentarium of every ophthalmologist, neurologist and neurosurgeon, and the library of each such physician would be woefully inadequate without it.—*Walter D. Abbott,* M.D.

Blank Hospital Pediatric Conference

The Sixth Annual Pediatric Conference, sponsored by the Raymond Blank Hospital Association, the Division of Maternal and Child Health of the Iowa State Department of Health, the Iowa Pediatric Society and the Raymond Blank Hospital Guild, will be held at the Younker Memorial Rehabilitation Center, Iowa Methodist Hospital, Des Moines, on April 13 and 14.

The program is to include a full day of presentations on Friday, followed by a banquet at the Des Moines Club, and a clinical conference and lectures that will occupy the whole of Saturday. The guest speakers will include Robert A. Aldrich, M.D., of the University of Washington, Seattle; John D. Crawford, M.D., of Harvard; Robert B. Lawson, M.D., of Northwestern University; Irving Schulman, M.D., of the University of Illinois; and Genevieve Stearns, Ph.D., of S.U.I.

Advance registrations are requested, and since the national bowling tournament will be crowding the Des Moines hotels and motels, those who wish housing should avail themselves of the Program Committee's offer to make those arrangements no later than April 5. Registration is $20 for both days, or $10 for just one. The registrant's luncheon ticket(s) will be included in his registration fee, but ones for physicians' wives are $1.50 each. Banquet tickets are $6 each. Address: Charlotte Fisk, M.D., 3200 University Avenue, Des Moines 11.

Summer Camp for Diabetic Children

The Summer Camp for Diabetic Children will be conducted for the fourteenth successive year, from July 15 through August 5, 1962, at Holiday Home, Lake Geneva, Wisconsin, under the auspices of the Chicago Diabetes Association. Boys and girls from eight through 14 years of age are eligible.

As in previous years, the camp will be staffed by resident physicians, a nurse, two dietitians and a laboratory technician, in addition to the regular counseling and domestic staff of Holiday Home.

Rates are arranged to suit individual circumstances.

Application blanks can be obtained from, and inquiries should be directed to: Chicago Diabetes Association, 620 North Michigan Avenue, Chicago 11. The first review of applications will take place on March 20.

The Socialized State

O. G. POWELL, Des Moines
President, National Association of Real Estate Boards

If there is any significant peril in the future course of this country, it is to be found in the shackles and chains of political controls; it is to be found in the corruption of political freedom and the burgeoning of the socialized state.

I have no substantial concern over the ebb and flow of the economic tides. I know that in a free economy there must be times of plenty and times of want, periods of prosperity and periods of privation. In 1932 we saw business go down into the economic valley of the shadow of death, only to come out again with new and greater vigor. And I have seen it falter in some measures of distress a half dozen times in the four decades of my commercial life. But, may I say in passing, I never saw any economic trouble not cured by salesmanship, ingenuity, imagination, inspiration—the fuel which powers the whole economic machine.

I would not deny to a younger generation the privilege of making its own mistakes.

Yet, I ask myself, do I have the right to fasten on to the charging chariot of another generation the burden of a 300 or 400 billion dollar national debt?

Do I have the right to enfold the political economy of that generation in a straight jacket of controls, restraints and regulations?

Do I have the right to shadow their lives with the clouds of fear and the fog of futility?

Do I have the right to lay at their doorstep the trials and travails of all the world from the jungles of Africa to the ice lands of Mongolia?

Let us look, not as sociologists or research scientists or political economists or statisticans—they can be wrong, too—let us look as plain people at the intangibles that affect the environment and the future of this country—very real intangibles which are grown out of the expanding trend toward socialization of the political state, on the one hand, and the quest for personal power, on the other.

Partly by indifference, partly by neglect, partly by self-indulgence, we have let the shrewd and devious and alert protagonists of the socialist state creep up upon us and almost surround us. Let us recognize that a socialized state is a socialized state, whether you call it by the name of communism or socialism, or disguise it in catch phrases designed to have popular appeal.

No place is the issue between the free play of private enterprise and state control more clearly joined than it is in the area of public housing. Here we have a gargantuan economic Frankenstein created by the people themselves, feeding upon tax exemption, tax subsidy and tax avoidance, acting to destroy communities . . . regiment society, perpetuate poverty and thwart enterprise.

This social misfit has been foisted upon the public in a variety of guises, originally, as a project in "make work," later as a project to relieve a war-induced housing shortage, later as a project to rebuild slums, and now—frankly—as a project in social regimentation.

The public-housing proponents know no limits. They would reach into the smallest hamlet as well as into the largest city, and into every class of the residential economy and into every economic stratum. Until we have restricted and restrained this wanton abuse of every principle of American tradition, we will have failed in our duty to posterity—our duty to society.

Not too far from the institution of public housing is the program of "urban redevelopment," which appears in far too many cases to be more closely associated with urban destruction. Under its banner, we have carried forward a program of spot reclamation using the bulldozer and the wrecker's ball—destroying satisfactory housing, in many cases, and frequently destroying established patterns of community life, to the distress of the people who have made their homes in the affected areas.

Too often, the effect of these projects has been to relocate slums, rather than to eradicate them, and in our big cities new areas of deterioration have followed just as fast as the old areas have been removed, if not faster.

Surely it is time now for another long look at this business of urban rebuilding under the guidance and the dictates of a federal bureaucracy. It is time to put the burden of cost as well as the responsibility of control back upon the communities.

The burden of real estate tax is, of course, one that we shall always have with us, and it is a burden which is to be accepted by the property owner as a price to be paid for orderly government. But such acceptance does not imply that burden shall be permitted to become so onerous as to destroy both the incentive and the ability to own property.

Too often, extravagance, waste, luxury and graft have been added to the cost of municipal services.

Too often the administration of welfare is viewed in terms of political expediency, rather than in terms of the relief of justifiable needs.

Too often has the cost of education been expanded to include frills and foibles, rather than the fundamentals of learning.

Too often have we lost sight of the necessity for balance between the need for social services and our ability to provide them.

Perhaps if I were discreet rather than candid, I wouldn't talk very much about the mounting menace of the thing we call "forced housing." And yet I would tell you that all around the nation a vicious and unrelenting campaign is being carried on to provide by legislation and by executive decree a rule that a man cannot sell or rent his house to a person or persons of his own choice.

Here is perversion of the traditional constitutional rights of the American citizen in its most vicious form.

Here are the seeds of the breakdown of a free America. Take away rights of property ownership, and human rights become a relic of another age. Here is our greatest challenge.

Let us give unto Caesar all the things which are properly his, and keep for free men the legacy of their birthright. Let us get the federal government out of the housing business, out of the mortgage business, out of the school business.

Let us quit perverting the FHA into fields of social welfare and old age benefits. Let FHA do the job it did so well for so many years—just simply the insurance of mortgage credit.

If America faults, if America denies to its sons their freedom and independence, these are and will be our faults. Let us, Americans, do something about it.

Annual Cancer Seminar in Phoenix

The Arizona Division of the American Cancer Society will hold its Tenth Annual Cancer Seminar at the Westward Ho Hotel, in Phoenix, on March 15, 16 and 17. The topics to be discussed are carcinoma of the breast, tumors of children, skin tumors, cancer research, and perfusion. The

principal speakers include H. O. Sjogren, M.D., of the Karolinska Institute, Stockholm; Sir Macfarlane Burnet, of the Institute of Medical Research, Melbourne; Michael Feldman, M.D., of the Weizman Institute of Science, Rehovoth, Israel; J. R. Marrack, M.D., of Cambridge University; and Fernando G. Bloedorn, M.D., head of the Division of Radiotherapy at the University of Maryland.

Copies of the complete program and additional information can be secured from W. Albert Brewer, M.D., 543 East McDowell Road, Phoenix.

Stress Response to Reserpine

Reserpine, a widely used tranquilizer and antihypertensive drug, can interact with the body's nervous and hormonal mechanisms to produce a biochemical picture almost indistinguishable from the classical "stress" response evoked by prolonged exposure to cold, pain, and similar unpleasant stimuli, studies by Public Health Service scientists indicate.

These findings are reported in the current issue of the JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS by Drs. Roger P. Maickel, Erik O. Westermann, and Bernard B. Brodie, of the National Heart Institute.*

The work cited is part of a program of research being conducted by the NHI Laboratory of Chemical Pharmacology under the direction of Dr. Brodie. The aim of this program is a fuller understanding of the biochemical basis of behavior, particularly of those biochemical mechanisms that enable the organism to adapt to environmental changes.

The studies showed that reserpine, when given to rats, causes excessive secretion of the pituitary hormone ACTH, the release from the adrenal glands of large quantities of corticosterone, and the mobilization of free fatty acids from the body fat depots. These responses to reserpine are strikingly similar to those evoked by prolonged exposure to cold, pain, and similar "stresses."

Even more paradoxical were the subsequent findings that the stress responses were set off only by doses of reserpine large enough to produce sedation, and apparently resulted from the same action of reserpine responsible for its tranquilizing effects. Further, the stress responses to reserpine could be prevented by monoamine oxidase inhibitors, a class of drugs usually employed as antidepressants rather than as "anti-stress" drugs.

The sedative and tranquilizing effects produced by reserpine result from its action on two brain amines: norepinephrine and serotonin. The drug blocks the ability of the brain to store these amines. As a result, large quantities of these amines are liberated to diffuse passively away or to be set upon and destroyed by enzymes. This steady drain eventually depletes the brain of most of its norepinephrine and serotonin.

A preponderance of free norepinephrine in the brain is usually associated with arousal and with active behavioral patterns, a preponderance of free serotonin with sedation, tranquility, and recuperative behavior patterns. Reserpine attacks the storage sites of both amines indiscriminately. However, as the brain levels of both decline, free serotonin predominates over free norepinephrine. This occurs because serotonin is made at a faster rate by the brain than is norepinephrine. The result: tranquility and sedation—up to a point.

The NHI studies showed that, when brain amine levels dropped to about 50 per cent of normal in reserpine-treated animals, the pituitary and adrenal glands abruptly entered the picture. The pituitary began to release large quantities of ACTH, which, in turn, triggered the release of corticosterone and other steroid hormones from the adrenal cortex. These hormones, acting in concert with catechol amines from the adrenal medulla or released locally in adipose tissue, led to the mobilization of free fatty acids. In short, these animals—outwardly tranquilized, even stupefied—were exhibiting most of the classic biochemical responses to stress.

Subsequent studies on this state of "stressful tranquility" showed that the pituitary-adrenal responses did not result from a direct action of reserpine. They were related, however, to the drug's depletion of brain amines, specifically serotonin. Whenever brain serotonin levels fell below 50 per cent of normal, the stress responses were elicited. They were not elicited by drugs which selectively depleted brain norepinephrine but not brain serotonin.

Monoamine oxidase inhibitors, widely used as antidepressant drugs, could block the pituitary-adrenal responses to reserpine. They did so by blocking the enzymatic destruction of the free amines released by reserpine. This action slowed the decline of brain amines and usually prevented them from falling as far as the magic 50 per cent level.

The pituitary-adrenal response to reserpine would also disappear eventually even if further reserpine were administered. The pituitary, it appears, could not stand the strain forever, and eventually ran out of ACTH to secrete.

Reserpine, grain alcohol, and a number of other so-called depressant drugs have been found to trigger the excessive secretion of ACTH by the pituitary that sets these "stress responses" in motion. How they do it is not yet known, but the NHI scientists are trying to find out. Basic knowledge about the interaction of drugs with the body's nerve and hormonal mechanisms is becoming increasingly essential to the proper therapeutic evaluation of new drugs.

* The National Heart Institute, located at Bethesda, Maryland, is one of the seven National Institutes of Health of the Public Health Service, Department of Health, Education, and Welfare.

Las Vegas AAGP Assembly

A gourmet's medical smorgasbord, featuring such familiar entrees as backache and appendicitis as well as philosophical delicacies like "death with dignity" and "undetected murder," will be served family doctors attending the Fourteenth Annual Scientific Assembly of the American Academy of General Practice April 9-12 in Las Vegas, Nevada.

Upwards of 3,000 Academy physicians are expected to visit Las Vegas to whet their professional appetites on this bill of fare designed both to preview new horizons in practical therapeutics and to re-emphasize the more important aspects of basic medicine. The 1962 Assembly will be the first national medical conclave to be held in the new 7¾ acre Las Vegas Convention Center.

Of the more than 100 national medical associations, the Academy is the only one that requires its members to do continuing postgraduate study. Each member must complete 150 hours of accredited postgraduate study every three years. For this reason, the Assembly plays a vital role in the Academy's study program.

The scientific program will open Monday afternoon (April 9), on the heels of the 2-day annual meeting of the Academy's policy-making Congress of Delegates, which will have started the preceding Saturday at the Flamingo Hotel. The initial offering of the 25-lecture program will be a symposium and panel discussion on the growing field of geriatric medicine and the leading role general practitioners must assume in the health problems of an aging population.

Tuesday's program will range from a penetrating reappraisal of cesarean section to discussions of the latest work in practical orthopedics. On the afternoon program are surgical considerations of appendicitis in the antibiotic era, and of facial injuries requiring plastic reconstruction.

The spotlight swings Wednesday to pediatrics, vascular disorders, diabetes and thyroid difficulties, and also provides some peeks into medicine's future. Highlighting the morning session will be a recapitulation of the grim factors involved in unexpected death in infants, a timely briefing on the still-experimental measles vaccine by one of its developers, and an "avant-garde" discussion on electronics in medicine. Afternoon activities will feature a vascular symposium, an up-to-the-minute presentation on diabetes, and a new development in the debate on "Medical vs. Surgical Management of Thyroid Disease."

Thursday's program will give new dimensions to a problem that has dogged practitioners for centuries, a legal aspect that in recent years had haunted every physician, and a phase of medicine that largely has been misunderstood by practitioner and public alike. "Death with Dignity" is the title of the panel discussion leading off this interest-packed last day. Featured are a Jesuit theologian and professor of ethics, a surgeon who is a former president of both the American Medical Association and the American Cancer Society, and the assistant director of the Sloan-Kettering cancer hospital in New York. The priest will offer a far from inflexible viewpoint on the matter of artificially prolonging the lives of hopelessly ill, suffering patients.

Melvin Belli, one of the Coast's most famous trial lawyers whose fame was made largely in malpractice litigation, will throw light on the legal pitfalls that beset the practitioner of medicine. A campaigner for closer ties between medicine and the law, Belli not only will expose traps but will press for assistance from the medical profession against errant practitioners.

"The Forensic Pathologist—Sherlock Holmes or Social Scientist?" is the title of the concluding presentation. In it, the medical examiner of Los Angeles County will outline the expanding role of the coroner or medical examiner, and his need for a new "image."

Many of the formal lectures will be borne out graphically by the 152 scientific exhibits on display in the 90,000 square-foot Exhibit Hall. Other timely subjects to be presented in the exhibits are "Medical Aspects of Environmental Radiation" and "The Physician in Investigation of Fatal Air Accidents." Fields serving medicine—pharmaceutical houses, instrument supply and equipment companies, medical publishers and infant-food manufacturers—will introduce family doctors to their newest products by means of technical displays that will fill the remainder of the huge Exhibit Hall.

The Assembly social calendar will be climaxed on the night of April 11 by the President's Reception and Dance, which will immediately follow the inauguration of President-elect Dr. James D. Mur-

phy, of Fort Worth, Texas, successor to Dr. Floyd C. Bratt, of Rochester, New York. For Academy wives, there will be a complete ladies' program, featuring an advice-laden lecture on "How to Please Your Doctor Husband" by a professional speaker who specializes in feminine arts and graces.

We hope many Academy members from Iowa are making plans to attend this annual National Assembly, not only for the education it has to offer but also for a well-earned vacation in a sunny spot.

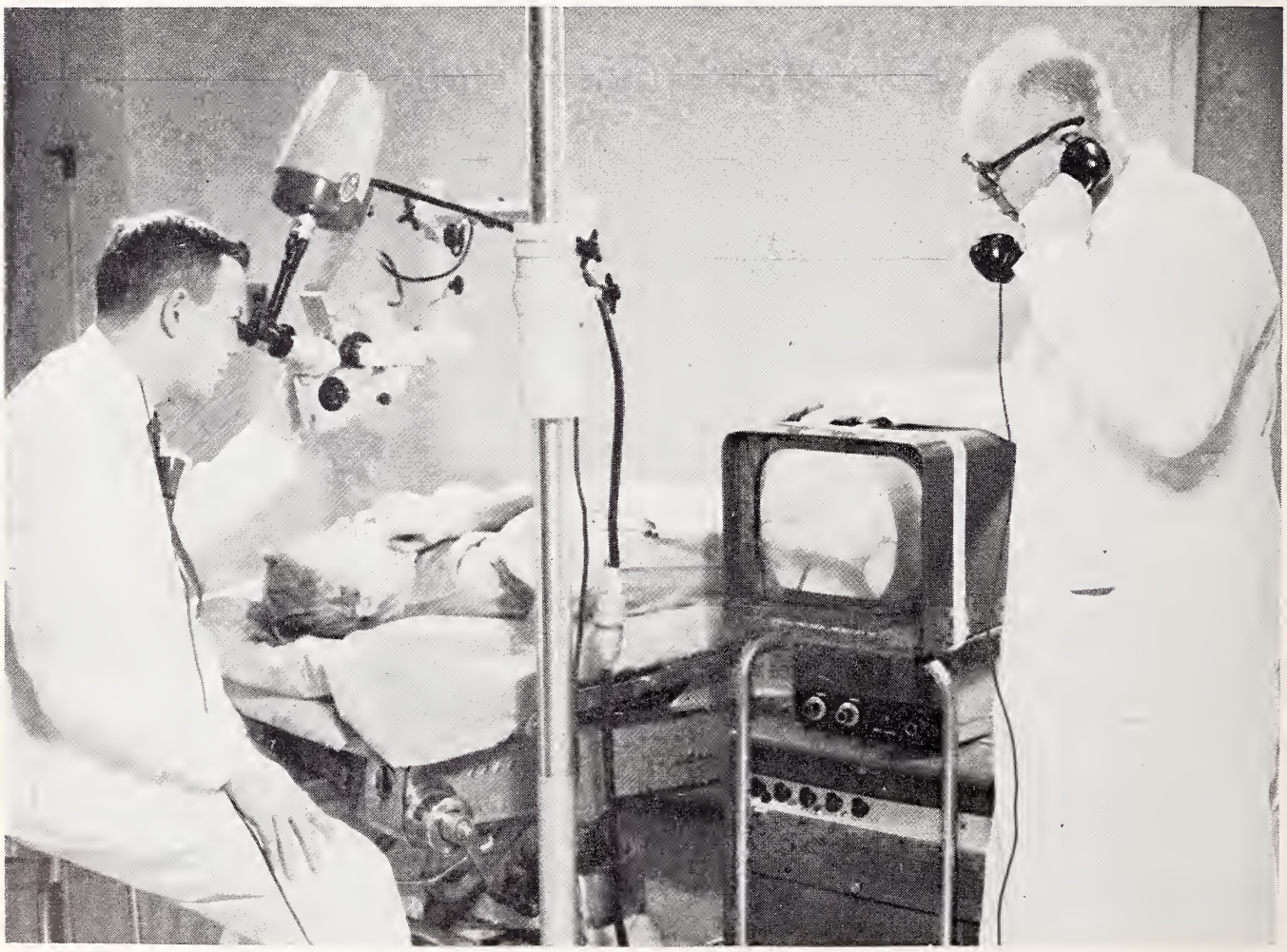
GP Refresher Course

Television put 131 physicians at the surgeon's side during three surgical demonstrations on Tuesday, February 13, at the State University of Iowa General Hospital. The physicians, attending a postgraduate refresher course, watched the demonstrations on television monitors three floors below the operating room where the closed-circuit telecasts originated.

With the television camera linked to a surgical microscope in the final demonstration, the physicians had the same microscopic view as the surgeon, Dr. John A. Gius, as he gave short presentations of practical technics used in working with small structures. From any seat in the Medical Amphitheatre, the physicians could easily see the procedures on one or more of the six monitors equipped with 23-inch screens. They could also hear the commentary of the surgeon as he carried out the demonstration.

Dr. Robert T. Tidrick, professor and head of surgery, was in the amphitheatre to provide additional comments at times and to relay questions from the viewers to the surgeon by an intercommunication system while the demonstrations were in progress.

Concealed cables now link several areas of the General Hospital and the Medical Research Center into a television network that is expected to have increasing value as an aid to medical teaching, both on the undergraduate and postgraduate



Running a test on the new closed-circuit television network at the State University of Iowa Medical Center are Dr. John A. Gius, professor of surgery (holding the intercommunication phone), and Don E. Boyle, junior medical student (looking through the microscope). The television camera is linked to the microscope, and the picture on the small studio monitor is exactly what Boyle sees as he looks through the microscope. Surgical demonstrations were telecast on February 13 for physicians attending a postgraduate refresher course at S.U.I.

levels. Much of the planning for the new television system was done by Dr. Gius and Don E. Boyle, a junior medical student from Perry.

Demonstrators at the annual Refresher Course for the General Practitioner were Dr. Gius, professor of surgery; Dr. David A. Culp, professor of urology; and Dr. Nicholas P. Rossi, associate in surgery. The day-long sessions which were held from Tuesday through Friday, February 13-16, were devoted to surgery, pediatrics, obstetrics and gynecology, and internal medicine.

The following Iowa physicians registered during the first day of the postgraduate course:

Dean F. Koob, Algona; C. G. Wuest, Amana; John A. Caffrey, Ames; John L. Bailey, Anamosa; C. E. Douglas and Norman C. Knosp, Belle Plaine; Glenn J. Hruska, Belmond; Earl J. Houghton, Bettendorf; J. O. Moermond, Buffalo Center; Harry N. McMurray, Burlington; Don H. Penly, Cedar Falls; James R. Flynn, Jr., Carlton B. Lake, Robert C. Locher, E. B. McConkie, Julius Pietrzak, James J. Redmond, J. A. Smrha, C. H. Stark, David Thaler, John F. Troxel, Robert W. Veley, Cedar Rapids; Edward E. Schmeidel, E. J. Goen, Charles City; E. M. Mark, Clarksville; Sidney Brownstone, Clear Lake.

J. R. Jowett, Clinton; John C. Nolan, Corning; Howard G. Beatty, Creston; Eugene E. Lister, Dallas Center; Gordon A. Flynn, J. R. Shorey, Davenport; John Hess, Jr., George Kern, Des Moines; Wallace H. Ash, Leander H. Schafer, DeWitt; J. L. Saar, Donnellson; A. R. Powell, Elkader; Carlyle C. Moore, Emmetsburg; J. W. Castell, James H. Turner, Fairfield; J. B. Thielen, Fonda; Charles L. Dagle, Dan S. Egbert, E. M. Van Patten, Fort Dodge; L. G. Schaeferle, Gladbrook; J. C. DeMeulenaere, Grinnell; Herbert Neff, Guthrie Center; E. M. Downey, Guttenberg.

Asa S. Arent, Nelle Schultz, Humboldt; C. R. Eicher, A. C. Garvy, L. H. Jacques, Harry R. Jenkinson, K. J. Judiesch, Wayne J. Tegler, Iowa City; John L. Mochal, Independence; G. D. Bullock, Inwood; William A. Seidler, Jr., Jamaica; D. G. Sattler, Kalona; John W. Saar, B. D. Van Werden, Keokuk; F. P. Ralston, Knoxville; Paul Ferguson, Lake City; S. M. Haugland, Lake Mills; H. L. Pitluck, Laurens; George J. Zibilich, Lone Tree; Wilton J. Willett, Manchester; John M. Hennessey, Manilla; J. A. Broman, F. J. Swift, Jr., Maquoketa; H. E. Sauer, Ivan H. Sheeler, Marshalltown; Robert W. Myers, O. E. Senft, Monticello; Byron E. Peterson, Mt. Pleasant; Gordon Rahn, Robert A. Sautter, Mt. Vernon; Warren Swayze, Edward R. Wheeler, K. E. Wilcox, Muscatine; John D. Conner, Nevada; W. R. Vaughan, New London; Richard E. H. Phelps, New Sharon; Robert J. Kaufman, Newton; L. A. Miller, North English.

Myron R. Hausheer, Oakland; John Hubiak, Odebolt; R. S. Jaggard, Oelwein; E. B. Grossmann, Orange City; R. B. Isham, Osage; Sidney A. Smith, Oskaloosa; R. J. Peterson, Panora; Stewart Kanis, Pella; Allen M. Cochrane, Perry; J. M. Rhodes, Pocahontas; H. C. Bastron, Red Oak; Roy G. Klocksiem, Rockwell City; Merlin U. Broers, Schleswig; T. J. Carroll, Sibley; DeWayne C. Anderson, Stanhope; Norman J. Elmer, Sumner; G. M. Dalbey, Traer; Edward J. Liska, Ute; Don C. Weideman, Vinton; L. E. Weber, Jr., Wapello; Eugene Smith, Waterloo; T. M. Mast, Washington; James G. Widmer, Wayland; George A. Paschal, Webster City; R. B. Widmer, Winfield.

The Emerging Pattern of Urban Histoplasmosis*

Urban children, because of their more localized environment and less frequent exposure, appear to be more suitable subjects than rural children for studies of the acquisition of Histoplasma capsulatum infection. Three sources of infection among urban children have been reported: visits to farms or prior rural residence, exposure in urban structures contaminated by bird droppings, and importation of contaminated farm soil or manure as fertilizer.

A fourth source of infection consists of wooded, open park areas contaminated by bird droppings.

Mexico is a city of 15,000 people in each central Missouri. During the second week in April, 1959, similar illnesses characterized by chills, high fever and cough developed in four boys there. The clinical features and chest x-ray findings led the hospital radiologist to suspect histoplasmosis. Positive skin and serologic tests later confirmed the diagnosis.

All four had had onsets of illness within 12-14 days after March 28, 1959, when 64 Boy Scouts had worked together clearing a large city park. Since it was probable that a large proportion of the Scouts in Mexico had been exposed to the infection, arrangements were made through the organization for further investigations. An epidemiologic questionnaire was completed by 113 boys, but not all were willing to have skin and serologic tests and x-ray examinations.

TESTS PERFORMED

The standard used in skin testing was of a potency equivalent to standard histoplasmin. Two complement-fixation tests were performed, histoplasmin being used as antigen in one and whole-yeast phase organisms in the other. X-ray films, 14 by 17 in., were evaluated by physicians experienced in the interpretation of chest films.

Soil samples were collected on several occasions from the park suspected as the source, and were cultured for H. capsulatum.

The site of the epidemic was a part of 11 acres

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* Abstracted from an article by M. L. Furcolow, F. E. Tosh, H. W. Larsh, H. J. Lynch, Jr., and G. Shaw, in THE NEW ENGLAND JOURNAL OF MEDICINE, June 15, 1961.

on which a large, plantation-type home, built before the Civil War, is located. The house has fallen into disrepair, and the grounds have been converted into a pasture for livestock. The grounds had been completely untended for 15 or 20 years, and had become heavily overgrown with brush and trees. The city of Mexico had grown around the property, so that the park now lies near the center of the city.

In December, 1958, when the city began clearing the property, it was described as a jungle, with dense underbrush and vines among large trees. Leaves and debris were at least several inches deep. Since about 1950 the park had been a favorite roosting place for starlings. By the summer of 1955, thousands of these birds inhabited the park, and their droppings almost completely covered the ground. Because of the noise of the birds and the disagreeable odor, the local residents had undertaken eradication measures. Despite a marked decrease in the bird population, there still were large quantities of bird droppings at the time of the epidemic.

HISTOPLASMIN RESULTS

Of the 64 boys who had worked in the park, 62 (97 per cent) had positive histoplasmin tests, 36 out of 60 (60 per cent) had positive complement-fixation tests for histoplasmosis, and 28 out of 60 (47 per cent) had active lesions on x-ray. Of a group of boys who had not worked in the park, only 41 per cent had positive skin tests, 25 per cent had positive complement-fixation tests, and 25 per cent had active lesions on x-ray films. It appears that practically all of the exposed, susceptible boys became infected. It is not surprising to find a number with evidence of H. capsulatum infection, even though they did not work on the property, because Mexico lies within a highly endemic area. Furthermore, the central location of the park favored casual visits and exposures.

Only 10 of the boys who had worked in the park gave histories of clinical illness. Nine of that number had positive histoplasmin skin tests and serologic and x-ray findings. In the other boy, only the skin test was performed, and it was positive. In five of the 10 boys, a moderately severe illness had developed, lasting from one to six weeks, with symptoms of chills, fever, cough, malaise and chest discomfort. The other five reported symptoms of a mild upper-respiratory-tract infection lasting a few days.

Sixty-two per cent of all soil samples collected from this property were positive for H. capsulatum by culture, an unusually high yield. There is little doubt that the fungus was flourishing abundantly throughout a large portion of the park site.

The question arose of whether the frequency of isolations from the park represented an unusual prevalence of the fungus in that specific place, or merely a high prevalence throughout the entire area. Thus, soil samples were collected from six selected sites within a radius of three miles from the city of Mexico and in the city itself. Only one of the soil specimens was positive for H. capsulatum. It is clear, therefore, that the frequency of isolations from the park was unique, and not in any way typical of similar sites in the same general area.

The Public's Responsibility in Emergency Medical Service

A recent survey of the experience of the Emergency Medical Service in Monroe County, New York, reveals some pertinent facts regarding public attitudes. The survey covered the first four months that the service was in operation, September, October, November and December, 1960, and also September, 1961, which was used as a check month.

Of 592 calls during the five-month survey period, 85 (about 15 per cent) reported a serious enough emergency to require hospitalization of a patient.

Of the 592 callers, 286 reported that they had no family doctor. Another 110 (or 18 per cent) admitted having made no effort to reach their family doctor before calling the Emergency Medical Service. Only 46 of them (8 per cent) had tried and had been unable to reach their family doctor.

The following guide lines were laid down for defining a true emergency: (1) bleeding that can't be stopped; (2) interference with breathing; (3) convulsive seizure; (4) acute pain; (5) sudden unconsciousness without quick recovery; (6) high temperature for no apparent reason; (7) severe coughing.

The following specific abuses were revealed by the survey:

1. Patients calling while under the influence of alcohol.
2. Failure of parents to instruct babysitters in the procedure for calling the family doctor in the event of a medical emergency.
3. Patients who have a family doctor but, for a variety of personal reasons, do not care to call him.
4. Patients who call for routine medical advice or treatment, though they have family doctors and their situations don't constitute true medical emergencies.

Subsequently, the Monroe County (New York) Medical Society undertook to publicize a couple of pieces of good advice:

1. Elderly people whose family physician has retired should take care to establish a relationship promptly with another doctor. Newcomers to a community should regard making the acquaintance of a physician as one of the important steps in their getting settled.
2. Parents should instruct babysitters, preferably in writing, about the procedure for calling their doctor in case of a medical emergency.

THE DOCTOR'S BUSINESS

Hedging Against the Effects of Inflation

HOWARD D. BAKER
Waterloo

The major function of life insurance is, in the event of the death of the head of a family, to provide *financial protection* for the dependents. But "ordinary life" and "endowment" policies have a second function—to make the policyholder accumulate some savings. These are represented by the cash or surrender values, and part of each premium helps to build them up.

We have never recommended life insurance for investment purposes, yet ordinary-life and endowment policies represent, in part at least, fixed-dollar investments which our clients should take into account as they do their investment planning.

Most investors recognize that inflation seriously erodes the purchasing power of their savings accounts, bonds and similar holdings, year after year. The data reflecting developments in the life insurance industry, however, strongly indicate that the majority of investors haven't yet realized the extent to which prolonged inflation erodes the usefulness of life-insurance savings.

Between 1940 and 1959, more than $130 billion of buying power has been lost by life insurance policyholders who misplaced their trust in a depreciating dollar. The accompanying table illustrates the year-by-year losses. Over those 19 years, the buying power of every life insurance policy in existence in 1940 was halved!

The men who bought ordinary-life or endowment policies prior to 1940 have life-insurance savings accounts that are capable of purchasing only half as much goods as they were expected to buy, and inflation is continuing. Those men have a choice of two alternatives: (1) to double their life insurance protection, or (2) to risk having their families exist on half as much protection as they planned for them in 1940. A return to prewar dollar values in the foreseeable future is practically impossible.

What can the life insurance buyer do to prevent a recurrence of this problem? How can he provide for approximately stable protection as the dollar continues to erode? Though a portion of any life insurance program certainly should consist of permanent, level-premium policies, the inflation that is bound to continue makes it unwise to place all of one's funds in high-premium endowments, annuities and limited-pay insurance plans. Until the economics of life insurance change to keep pace with our economy, more emphasis must be placed upon various types of term protection. A plan of permanent insurance (ordinary or whole-life) for strictly permanent needs, and term insurance for

ANNUAL LOSSES IN INSURANCE VALUES
1940-1958

Year	Insurance in Force (Billions of Dollars)	Loss in Purchasing Power (Per Cent)	Loss to Policyholders (Billions of Dollars)
1940	$111.6	− 1.00	−$ 1.116
1941	115.5	− 8.93	− 10.314
1942	122.2	− 8.32	− 10.167
1943	127.7	− 3.22	− 4.112
1944	137.2	− 2.10	− 2.881
1945	145.8	− 2.19	− 3.193
1946	151.8	−15.34	− 23.286
1947	170.1	− 8.28	− 14.084
1948	186.0	− 2.72	− 5.059
1949	201.2	+ 1.98	+ 3.984
1950	213.7	− 5.52	− 11.796
1951	234.2	− 5.48	− 12.834
1952	253.1	− .88	− 2.227
1953	276.6	− .70	− 1.936
1954	304.3	+ .52	+ 1.582
1955	333.7	− .35	− 1.168
1956	372.3	− 2.80	− 10.424
1957	412.6	− 2.96	− 12.213
1958	458.4	− 1.70	− 7.793
			−$130.064

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

all temporary needs must be strictly adhered to.

In addition to a basic insurance program, it is of utmost importance that the intelligent investor "insure his insurance dollar" by putting as many additional sums as possible into variable-dollar commitments such as investment funds, individual stocks, or other comparable securities. This method of "balancing" will provide at least a degree of protection against dollar shrinkage in the years to come.

In this age of decreasing values, it becomes doubly important to act upon the advice of competent counsel in all matters. Before embarking upon a full-scale insurance program or making substantial changes in your present program, it will be well worth your while to get a well-qualified individual to analyze your insurance program and your insurance needs completely.

Is There Anything Else I Can Do for You?*

Many of you may have read with interest the article by Dr. John A. Gius, professor of surgery at S.U.I., in the February 4 issue of THIS WEEK MAGAZINE. *For those of you who missed it, and for those who will re-read it happily, we wish to reprint Dr. Gius' excellent, thought-provoking "Words to Live By."*

A few weeks ago a young intern, after helping me to perform a difficult examination upon a patient, asked, "Now, is there anything else I can do for you, Doctor?"

The feeling of sincere interest and concern in his unexpected remark had a profound effect on me. It made me think about the business of doctoring, where the concepts of service, devotion, dedication, honesty and loyalty to people who are in trouble *should* be taken for granted. It appears, however, that over the years some of these values have been worn thin; some have actually been abandoned, and some have been perverted in pursuit of the "fast buck" or that much-publicized abstraction, "status."

Among every other variety of person as well as doctors, I have sometimes observed a disturbing tendency to think first of "What is there in it for me?" "Why become involved?" and "I have other more important things to do." As a result, performance tends to become standardized and superior accomplishments are neither expected, demanded or achieved.

I think that our traditional ideals have not been completely lost but that they have simply been crowded out of our lives by more "practical" motivations. We are so busy and so concerned with our own personal affairs that we often overlook the opportunity to serve and appear to subscribe to the "couldn't care less" creed. So we tend never to give more than the occasion requires.

In order to use our abilities and talents to the fullest degree and more nearly achieve fulfillment as individuals and as a society, wouldn't it be a good idea to ask the question more often: *"Now, is there anything else that I can do for you?"* And really mean it?

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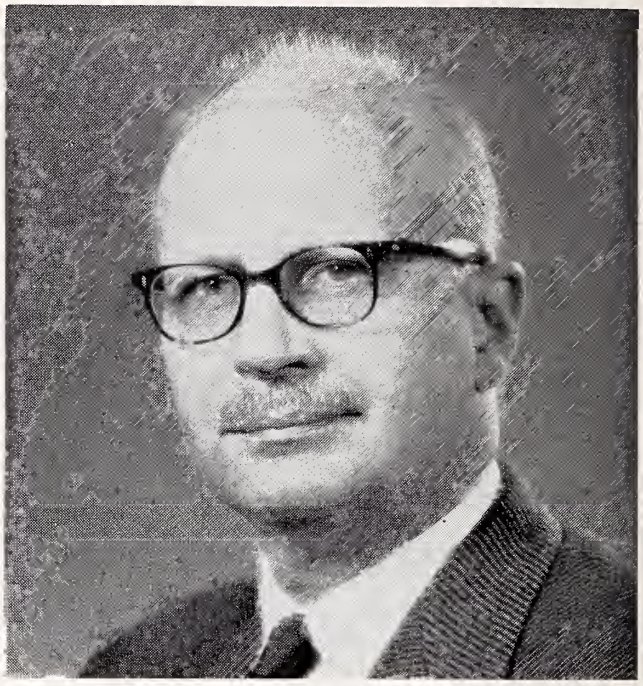


Dr. J. A. Gius

Sports Medicine Newsletter

"Medicine in Sports," a newsletter devoted exclusively to reporting the latest information on the care and prevention of athletic injuries, is now being distributed to all physicians interested in the subject. Physicians are invited to send their requests to Charles Stanton, Editor, "Medicine in Sports," c/o the Rystan Company, 7 North MacQuesten Parkway, Mount Vernon, N. Y.

The publication, which has been regularly available until now only to physicians in the Eastern states, is intended to fill a gap created by the rapidly growing interest in sports medicine. Although many professional journals cover the subject intermittently, "Medicine in Sports" regularly provides rapid summaries of material in the literature, provides coverage of meetings and symposia on a nationwide basis, and prints exclusive articles by authorities in the field.

The January issue, which covers the recent meeting of the AMA Committee on the Medical Aspects of Sports, is still available on request, according to Mr. Stanton.

STATE DEPARTMENT OF HEALTH

Edward D. Zimmer
COMMISSIONER

Morbidity Report for Month of January 1962

Diseases	1962 Jan.	1961 Dec.	1961 Jan.	Most Cases Reported From These Counties
Diphtheria	0	0	1	
Scarlet fever	304	195	231	Des Moines, Jefferson, Johnson, Polk
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	382	217	250	Buena Vista, Crawford, Iowa, Polk
Whooping cough	14	16	11	Scott
Brucellosis	3	12	14	Cedar, Scott, Wapello
Chickenpox	446	359	1,017	Buena Vista, Dubuque, Polk, Story
Meningococcic meningitis	1	4	0	Lee
Mumps	253	356	577	Black Hawk, Dickinson, Polk
Poliomyelitis	1	2	0	Guthrie
Infectious hepatitis	199	148	94	Black Hawk, Floyd, Johnson, Mills, Polk
Rabies in animals	39	18	17	Cedar, Des Moines, Hardin, Jackson, O'Brien
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	25	22	23	For the state
Syphilis	55	100	78	For the state
Gonorrhea	96	134	92	For the state
Histoplasmosis	1	3	0	Warren
Food intoxication	0	325	0	
Meningitis (type unspecified)	0	0	2	
Diphtheria carrier	0	0	0	
Aseptic meningitis	1	0	0	Polk
Salmonellosis	0	2	17	
Tetanus	0	0	0	
Chancroid	0	1	0	
Encephalitis (type unspecified)	0	1	0	
H. influenzal meningitis	0	0	0	
Amebiasis	1	0	1	Fayette
Shigellosis	6	1	5	Polk
Influenza	7,858	8	14	Des Moines, Polk, Shelby, Washington

USPHS Influenza Surveillance Report February 1, 1962

Epidemics of respiratory disease attended by increased school absenteeism are currently prevalent throughout the Midwestern and Southeastern states. Following the first Midwestern identification in Missouri and Southern Illinois, epidemic influenza B spread to involve Eastern Kansas, Western Kentucky, Central Tennessee, and North Georgia. This week, in addition to further spread within these states, a marked increase in reported outbreaks has occurred in the neighboring states of Ohio, North Carolina, Arkansas, Minnesota, Wisconsin, Iowa, North Dakota, and Nebraska. On the periphery of this epidemic activity, scattered outbreaks were noted in South Carolina, Alabama, Indiana, Wisconsin, Oklahoma, and Texas.

Scattered outbreaks of acute febrile respiratory disease were noted in the northeastern United States. Increased school absenteeism and/or respiratory disease outbreaks were observed in southern Maryland (3 counties), New Jersey (8 counties), Pennsylvania (2 counties), Connecticut (2 counties), Massachusetts (2 counties), Vermont (2 counties), and New York (2 counties).

The epidemic has waned in the Pacific Coast states and is evidencing little spread in the Rocky Mountain area.

Influenza B has now been confirmed by virologic isolation or serologic titer rises in outbreaks in 18 states and the District of Columbia. Additional states reporting confirmations this week include Ohio, Minnesota, North Carolina, Wisconsin, Kansas, Iowa, and Utah. No evidence of influenza A activity has yet been uncovered.

A number of outbreaks have been reported in 3 Canadian provinces: Alberta, British Columbia, and Manitoba. Epidemics of respiratory disease confirmed as influenza B are occurring in Poland, Spain, Denmark, and the United Kingdom.

Deaths from pneumonia and influenza in 108 United States cities remain elevated above expected levels for the fourth consecutive week. Excess mortality this week is recorded in 3 of the 9 geographic divisions of the country.

As of February 9, the infection has spread to all areas of Iowa. Elementary and secondary school pupils are the first in a community to become ill in large numbers. Later the infection spreads to adults in the community. The Public Health Ser-

vice Communicable Disease Center at Kansas City, Missouri, whose personnel helped in the study made at Hazelton, Buchanan County, has reported the isolation of type B influenza virus from cultures obtained at Hazelton. Dr. Albert McKee, of the WHO Regional Influenza Laboratory at Iowa City, has reported serologic confirmation of type B influenza in University students at Iowa City.

Infectious Hepatitis Summary Iowa—1961

For a period following 1952-1954, when infectious hepatitis rates increased to a high level nationally and when Iowa reported 3,619 cases and the highest rate for any state in 1954, the numbers of reported cases decreased throughout the United States until about 1959, when another definite national increase was noted. Our own Iowa rates remained low in 1959, but began to increase in 1960. By 1961, the number of cases reported in Iowa had increased so as to give the state an infection rate of 70.1 per 100,000 persons and to place it in the top 10 states with highest infection rates.

The following summaries give the cases and deaths, by year, for a period encompassing the last two waves of infection. The second table lists the 69 Iowa counties from which cases were reported in 1961, and the number of cases reported from each of them for that year.

INCIDENCE IN 1962

Through the week ending February 3, a total of 256 cases of infectious hepatitis have been reported. Although the infection remains widely scattered, Floyd County has reported the most cases per thousand of population. Most of those cases have appeared in the Rudd-Rockford-Marble Rock School District. Using the combined resources of the State Department of Health and the U. S. Public Health Service's Communicable Disease Center at Kansas City, we are making a special study of the infection in that area.

Year	Cases	Deaths	Year	Cases	Deaths
1949	2	6	1956	370	18
1950	17	11	1957	177	10
1951	80	8	1958	201	7
1952	755	14	1959	167	6
1953	1,811	12	1960	460	14
1954	3,619	15	1961*	1,986	10
1955	967	10			

* Through November.

INFECTIOUS HEPATITIS, IOWA—1961

County	Cases	County	Cases
Adair	4	Johnson	1
Adams	1	Jones	1
Appanoose	9	Kossuth	1
Audubon	6	Lee	43
Black Hawk	98	Linn	12
Boone	356	Louisa	1
Bremer	5	Lucas	2
Buchanan	2	Madison	2
Buena Vista	5	Mahaska	8
Butler	1	Marion	15
Carroll	10	Marshall	3
Cass	3	Mills	29
Cedar	6	Muscatine	10
Cerro Gordo	3	O'Brien	1
Cherokee	6	Page	2
Chickasaw	2	Plymouth	1
Clay	2	Polk	520
Clinton	9	Pottawattamie	125
Crawford	8	Poweshiek	1
Dallas	27	Sac	1
Davis	3	Scott	214
Des Moines	13	Shelby	4
Dubuque	10	Story	10
Fremont	4	Union	1
Greene	4	Van Buren	4
Grundy	2	Wapello	46
Guthrie	15	Warren	64
Hamilton	7	Washington	4
Hancock	5	Wayne	1
Harrison	10	Webster	12
Henry	18	Winnebago	1
Iowa	1	Woodbury	135
Jackson	1	Worth	2
Jasper	38	Wright	9
Jefferson	6		

Abstracts of Articles on Venereal Diseases

Since 1957, infectious syphilis has been increasing alarmingly, and physicians who had not seen a single case of infectious syphilis in 20 years have begun finding it among their patients. Unfortunately, little information on the disease appears in the widely circulated medical publications.

To alleviate this situation, the Venereal Disease Program of USPHS routinely abstracts current articles on venereal diseases from almost 1,000 journals, both foreign and domestic, for a publication entitled CURRENT LITERATURE ON VENEREAL DISEASE which it distributes three of four times a year and indexes annually.

It will be sent regularly, free of charge, to physicians who request it. Address Dr. William J. Brown, chief, Venereal Disease Branch, USPHS Communicable Disease Center, Atlanta 22, Georgia.

Rabies Diagnosis

On January 1, 1938, the State Hygienic Laboratory initiated the mouse inoculation test as a routine procedure to be performed on all rabies specimens that were microscopically negative. It was the first state public health laboratory to initiate that procedure. On January 1, 1960, a comparative study was begun in an effort to evaluate the fluorescent antibody technic (FRA) in the diagnosis of rabies. After one full year of comparison, it was found that FRA is as reliable as the mouse-inoculation procedure that had been considered the court of last appeal. Thus, the Laboratory contemplates discontinuing the direct microscopic test and continuing, for the time being, to perform mouse tests on all FRA-negative specimens. If the reliability of the FRA technic continues, the mouse test may be discontinued, too. The following table presents the Laboratory's experience with the above-named tests:

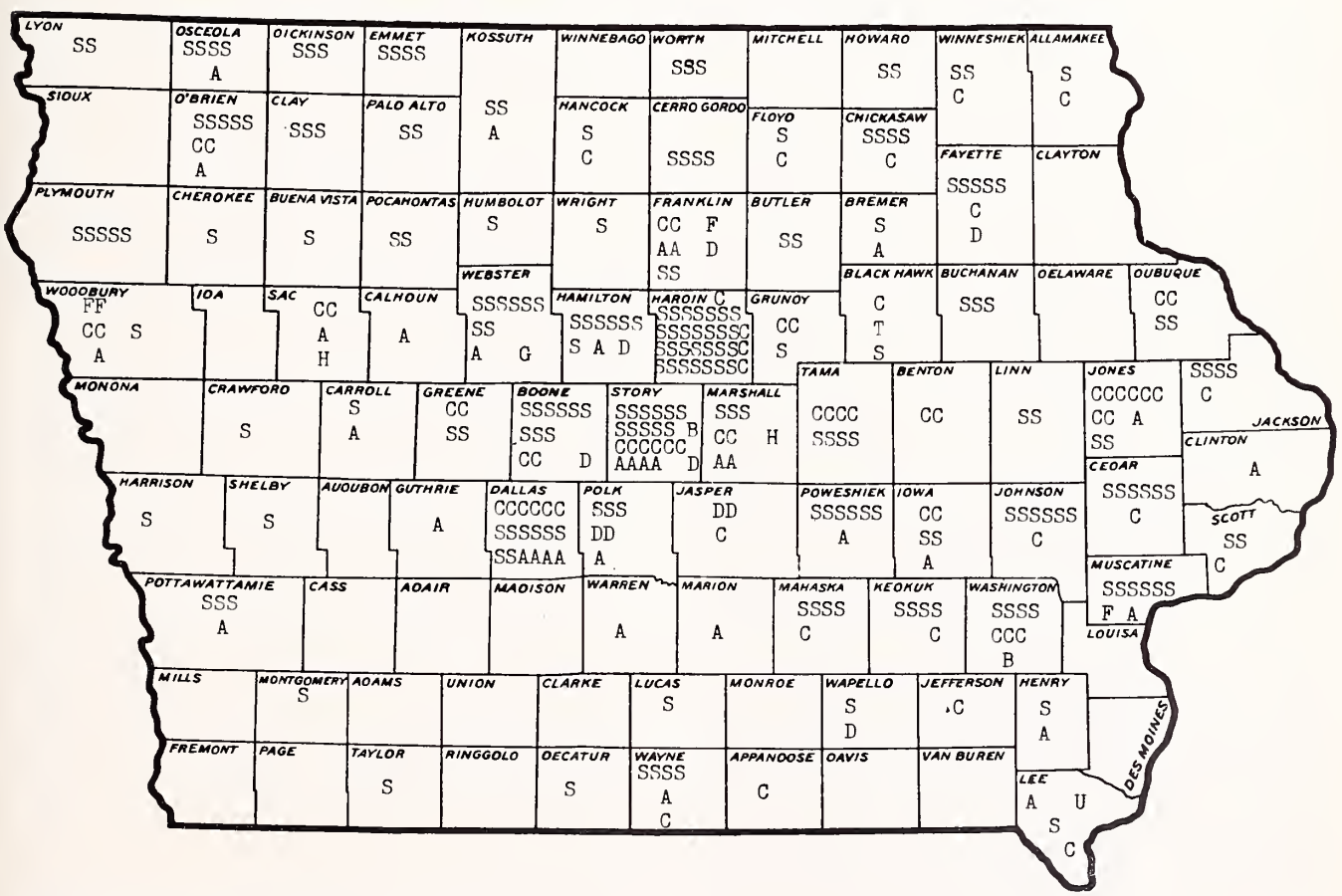
Direct Microscopic	–	+	–
Mouse Inoculation	+	+	–
FRA	+	+	–

Where the direct microscopic test has been negative, about 12 per cent have proved positive both on mouse inoculation and by FRA. Where the direct microscopic test has been positive, both mouse inoculation and FRA have been positive. Where the FRA has been negative, both the direct microscopic and the mouse-inoculation tests have been negative.

Thus it appears that the FRA test is highly specific and, in addition, is comparatively rapid, for it can be completed in less than 24 hours, whereas the mouse test requires 10-30 days to complete.

Rabies in Animals in Iowa in 1961

COUNTY DISTRIBUTION BY SPECIES OF REPORTED CASES*



* All Cases Confirmed by Laboratory Examination

Legend	Cases				
S-Skunk	221	D-Dog	10	G-Goat	1
C-Cattle	72	F-Fox	4	U-Unknown	1
A-Cat	35	H-Horse	2		
		B-Bat	2		
		T-Rabbit	1	Total	349

Woman's Auxiliary News

Our President Says—

The English translation of a statement of the Roman philosopher Marcus Aurelius comes to my mind in preparing my letter for you this month:

> "Time is a sort of river of passing events—and strong is its current. No sooner is a thing brought to sight than it is swept by, and another takes its place. Then this, too, will be swept away."

There have been many important events this year, worthwhile projects accomplished, and still other challenges to be developed. Already it is time for you who are officers and chairmen to prepare an account of your year's accomplishments.

The Annual Meeting committee met January 11 at the home of Mrs. Frank Coleman, in Des Moines. In spite of the severe winter weather, Mrs. A. C. Richmond, of Fort Madison, and Mrs. L. V. Larsen, of Harlan, were in attendance. It is their intent to develop and plan a stimulating, informative and entertaining meeting. Watch for the program in the April AUXILIARY NEWS.

Is your Auxiliary promoting the Essay Contest? Are you scouting about to find eligible candidates for the Volunteer Health Service Award in your county? Make sure that your county's selection is nominated for the state award. Special recognition will be given to the county essay contest winners and volunteer health service honorees at the Annual Meeting of the Woman's Auxiliary.

Those of you who attended the Iowa Auxiliary WHAM campaign meeting, February 20, in Des Moines, considered it an outstanding Auxiliary experience. We are indebted and grateful to our Iowa Medical Society and our own Legislative chairman, Mrs. Howard Ellis, for planning the occasion and enabling us to become informed on the problems and policies of the medical profession.

Let's put our shoulders to the wheel and prove that we are the Women who Help American Medicine!!

—GERTRUDE F. KILGORE, *President*

Give to the American Medical Education Fund

Tips for Safety

MRS. R. H. MOE

Fires are caused by:

1. Smoking in bed
2. Matches and cigarette lighters accessible to small children
3. Frayed electrical cords
4. Overloaded electrical circuits (Fuses blow repeatedly.)
5. Poorly vented heating systems
6. Absence of protective grills for exposed space heaters and radiators
7. Cluttered basements, attics and closets.

Tips on Fire Prevention

8. Store flammable liquids and oily rags in tightly-closed metal containers.
9. Empty ashtrays into closed metal containers or into the toilet. Use large, deep ashtrays.
10. Check the cost of installing a fire alarm in your home. It's inexpensive insurance.
11. Flameproof the drapes and curtains in your home, or have your cleaner do it.

ARE YOU ALWAYS A LADY IN TRAFFIC?

Were you as courteous as you could have been when you drove to the shopping center today?

1. Are you as courteous to other drivers sharing the road with you as you are to guests in your home?
2. Are you thoughtful of other drivers in signalling your intention to change direction—or change lanes?
3. Do you maintain your poise and dignity when facing everyday driving irritations?
4. Are you considerate of pedestrians—alert to help the handicapped or elderly?
5. Do you try to make your passengers as comfortable as possible by offering a smooth, safe ride?
6. Are you aware of the safety of *other* mothers' children, when driving your child to or from school, or do you double park or crowd the crosswalk, endangering others by obstructing necessary vision?

These 6 points may save you 12 points against your driving record.

COUNTY AUXILIARIES

BLACK HAWK

Thirty-five members of the Black Hawk County Auxiliary met January 16 at the home of Mrs. F. Harold Reuling, in Waterloo, for an interesting program. They heard Mr. M. J. Kitzman, artist instructor at West High School, Waterloo, give an analysis of contemporary painting. Despite the exploitation of such groups as the "action painters," who have made most people despair of learning what modern art is all about, there are some true modernists, and Mr. Kitzman identified them and explained what they have sought to produce. He showed slides to point out an orderly sequence in the development of what is called modern art. With great integrity and the serious conviction about painting that sets his own works far above those of the ordinary painter, he helped restore a respect for painting to the dubious and provided a renewal of inspiration for those already devoted to the subject of art.

Final plans for the annual Medicine Ball were made at the January meeting. This highly successful event, held during February, will be reported at a later date.

MARION

The Woman's Auxiliary to the Marion County Medical Society held its January meeting at the home of Mrs. A. N. Schanche, in Knoxville, with 10 members present.

Mrs. D. A. Mater, president, conducted the business meeting. Bylaws for the newly organized Auxiliary were read, discussed and adopted. The members agreed to sponsor a Future Nurses' Club as their project for the coming year.

The 1962 officers are as follows: president, Mrs. D. A. Mater; vice-president, Mrs. D. H. Hake; secretary, Mrs. A. W. Byrnes; treasurer, Mrs. F. P. Ralston; historian, Mrs. A. N. Schanche; publicity chairman, Mrs. T. D. Clark; corresponding secretary, Mrs. W. D. Rosborough; and parliamentarian, Mrs. G. M. Arnott. All of the officers are from Knoxville.

The Auxiliary planned a farewell dinner for Mrs. Clyde Nicholson, a charter member, who is moving to Des Moines on March 1. The dinner will be held at the Maple Buffet.

WAPELLO

The Auxiliary joined the Wapello County Medical Society for a dinner meeting at the Country Club, in Ottumwa, on February 6. The doctors were hosts at the social hour for 150 guests, and after dinner both they and their guests listened with great interest to a talk on "Socialized Medicine in England." The speaker, Daniel B. Stone, M.D., a native Englishman who is now an associate professor in the Department of Internal Medicine of the Medical College at the State University of Iowa. His talk was uniquely presented, and the audience seemed willing to agree with him that the U. S. would not be content to accept the lower standards of medicine now existing in England.

Community Health Service Award

Have YOU selected the candidate your Auxiliary considers deserving of recognition for her interest in health and health-education in your community? This is an excellent public relations project in which you, as an Auxiliary, can participate. Each county Auxiliary or member-at-large may nominate a woman for the statewide award. Send in the name as soon as possible after March 10, so that the judges at the state level will have ample time for reviewing and judging. The winner will be announced and the award presented at the Annual Meeting in May.

This citation is presented yearly to a lay woman for her interest and activity in the health field. The candidate should not be a member of a doctor's family, a nurse, or anyone else whose employment includes the particular service for which she is to be recognized. That is, her health work must have been done on a volunteer basis.

After your selection is made:

1. Send a report of her activities in your community to me.
2. Include a brief history of the individual herself.
3. Submit your candidate's name and a short summary of her activities to your local newspaper, radio and TV stations. In this way, many fine women will be given some publicity for their good work in their own community.

Have a meeting soon—get busy on this project—you just might have a winner living next door.

MARGARET STAUCH (MRS. OMAR)
Service Award Chairman
1823 Summit Street,
Sioux City, Iowa

Operation Coffee Cup

As an individual or as an Auxiliary, are you participating in this project? Your continued activity in opposition to the King-Anderson Bill is important. Contact your county Auxiliary president or legislative chairman, or the president of your county medical society, for the Ronald Reagan record to be used at your coffee. Several records are available in each county. Many Auxiliaries and individual members have played the record for various groups. Mrs. C. A. Trueblood, first vice-president of the State Auxiliary, held a series of coffees recently in her city of Indianola.

Have you participated? If so let us have a report.

"Meals on Wheels" at Ottumwa

"Meals on Wheels," now a permanent and valuable service within the Ottumwa city health program, grew out of a joint experiment by the Public Health Needs Advisory Committee and the Ottumwa Hospital. Miss Anna B. White, public health nurse in Wapello County, began it by recommending that one hot, well-balanced meal per day be provided to a home-bound elderly woman who was unable to cook for herself. A local restaurant prepared the meal, and it was delivered by a boy from the rehabilitation office.

A delivery problem and other sorts of difficulties eventually developed, but a report from the Public Health Nursing Service stressed the need for continuing and expanding the service. For the next several months, Miss White and others spoke before local groups on the need for and the feasibility of the plan. Finally, Mr. Richard Schreiber, administrator of Ottumwa Hospital, offered to have his institution prepare and deliver hot noon meals to five persons selected by the public health nurses and approved by the individuals' doctors. Starting on July 3, 1961, the project was continued daily for four weeks, at a cost of 50c per meal to each recipient—the estimated cost of the meal to the Hospital.

Response from the patients was overwhelmingly favorable, and the public health nurses said that the patients receiving the service showed considerable improvement in general appearance and in morale.

On September 15, the service became a permanent public health project in Ottumwa. It is thought to be the only such service in Iowa. At present, 10 persons are served noon meals in their homes. Meat and two vegetables are placed on a three-compartment Pyrex plate in the hospital kitchen, and the meal is transported in a "meal pack," an electrically heated vacuum container that can be carried like a suitcase. No bread, dessert, salad or drink is included. The hospital personnel who deliver the meals are paid for the gasoline they use.

One of the chief problems associated with starting the service was the cost of the "meal packs." Two-plate containers, although half again as expensive ($30 vs. $20), eliminate the "call back" problem. Delivery and container costs have been paid for by voluntary contributions from community organizations.

Both the Nursing Service and the Hospital are pleased with the success of this new type of care. Miss White says that one of the biggest problems at present is that of extending the program to those elderly persons living alone who do not eat adequate meals and feel that they cannot afford the service.

Special lists of articles on "Meals on Wheels" are available from the SUI Institute of Gerontology, Iowa City.

In Memoriam

"Henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous judge, shall give me at that day" II Timothy 4:8

Mrs. D. F. Crowley, Sr., Des Moines
Mrs. H. C. Willett, Des Moines
Mrs. R. J. Porter, Des Moines

Helping Others

It was good news to hear again from the Leprosy Relief Fund. Here is a quote from Mr. Aitken's most recent letter:

"Drugs came from Mrs. Lemon of Oskaloosa and other areas of Iowa.

"In fact, Iowa has helped us a great deal in our work and your efforts are much appreciated."

It is such a thrill to hear this! A special "thank you" from Iowa Auxiliaries to Mrs. Lemon, president of the Mahaska County Auxiliary, and others for sustaining us in this good work!

It would be exciting if someone from Iowa could go to Thailand and visit this leprosy colony which Dr. Orr deemed so deserving. This seems quite possible since Mr. Aitken mentions that he had a visitor from Texas—Iowans travel too!

Those of us who have no prospects of making such a trip must content ourselves with helping to further the work. So far, each county Auxiliary must assume shipping costs, and do its own soliciting and shipping. We do not have shipping cost relief from any existing agency that has this privilege. Perhaps sometime we can accomplish this. Meanwhile, let us help America and the AMA by sharing. Send all excess drug samples to:

MR. ADAM AITKEN
Leprosy Relief
Box 1283
Bangkok, Thailand

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

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Maintenance dose . . . . 2-4 mg.

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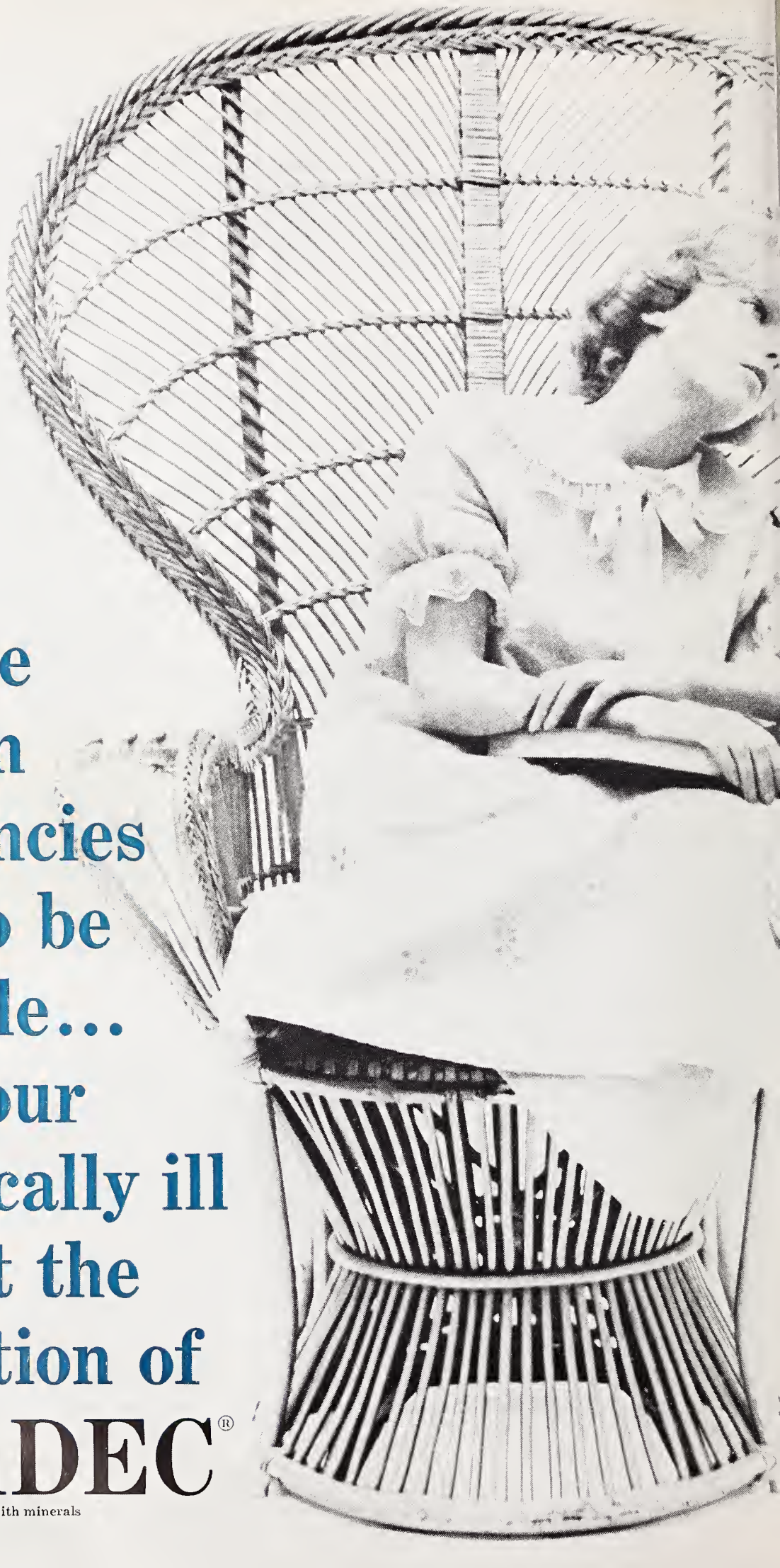
2 mg., Orange (scored)

APRIL, 1962



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The Faculty of the S.U.I. College of Medicine Dedicates the Following Papers to the Memory of

Walter Lawrence Bierring, M.D.*

Dr. Bierring, the grand old man of American medicine, is dead. He whose life seemed inextinguishable and who had risen more than once from a grave illness, is no longer among us. The plain fact of his mortality is set before us to contemplate. He, who seemed to have captured the well hidden secret of Ponce de Leon and embodied youthfulness in great antiquity has departed in the ninety-third year of his age. With his death one of America's strongest links with British and Continental medicine of the Nineteenth Century is broken. No longer do we have the beneficence of the urbane wisdom and humanity of this grand old man who managed to retain a young outlook, despite his venerable years which he wore with dignity but without solemnity.

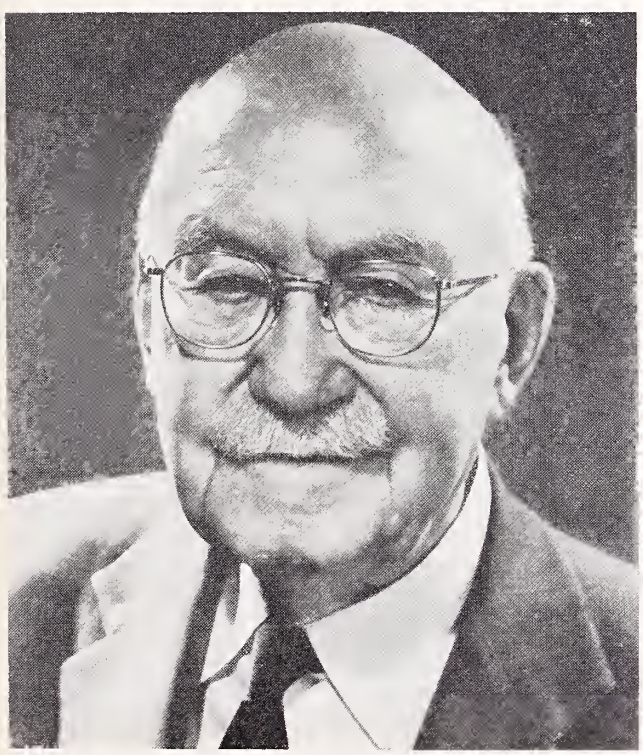
I first encountered the name Walter L. Bierring and the magnificent handwriting in which it was embodied on the Alpha Omega Alpha certificate which I received as an undergraduate student at the University of Virginia more years ago than I like to recall. I heard of him intermittently thereafter and was aware of his contributions to medical education, to the establishment of firm standards for practice and for licensure, and his work with the American Medical Association. Only when I came to Iowa thirteen years ago did I fall directly under his spell. He had been head of the Department of Internal Medicine of the College of Medicine, Iowa City, from 1903 to 1910. After much urging he wrote a book telling the story of our Department of Medicine which happened to be just two years younger than Dr. Bierring.

It was my pleasure to be closely associated with Dr. Bierring. He usually came down to Iowa City for the ΑΩΑ initiation each year. He recited the Hippocratic Oath with the new members, and often talked of the history of the society, or of medical history as he knew and lived it. I made at least four pilgrimages with him for the installation of new chapters of the ΑΩΑ including Oklahoma, Arkansas, Missouri and the Albert Einstein Medical School.

I think many undergraduate medical students shared my delight in the inspirational recollections Dr. Bierring was able to evoke of memorable days in the Pasteur Institute, of working in Koch's laboratory, visits and studying at the famous German schools and his visits to Britain. He was able to share with us intimate knowledge of many of medicine's heroic figures. Possessing as he did great natural advantages in mind and character, his habits and attitudes guaranteed for them full employment. He exemplified the rare phenomenon of productivity which increased rather than diminished with the years. Not for him was just the old man's dreaming of dreams but also the seeing of visions. Finally combining the zest of youth and the wisdom of years Dr. Bierring escaped the bane epitomized by La Rochefoucauld who said, "Old men are fond of giving good advice in order to console themselves for being no longer able to serve as bad examples."

Dr. Bierring's career may be divided, perhaps somewhat arbitrarily, into the phases of student, teacher, consultant, and elder statesman. He told me that he helped pay for his education by his penmanship, going around to fairs and other celebrations where he would draw elegant birds on elaborately ornamented scrolls, or write with many flourishes a person's name suitable for hanging in the Victorian parlor of the day. Even before he finished medical school his talents were well

* Reprinted from THE PHAROS, July, 1961, pages 184 to 187.



Walter Lawrence Bierring, M.D.
July 15, 1868—June 24, 1961

recognized and he had been appointed to take over the chair in the Department of Pathology and Bacteriology by the Board of Regents a few weeks before he received the M.D. degree on 9 March 1892. This he did after two exciting years when he studied in Heidelberg in Koch's laboratory, in Vienna with Billroth, and at the Pasteur Institute with Pasteur, Metchnikoff and Roux. One important result of such thoroughgoing and practical instruction was his introduction at Iowa of the newer methods of staining bacteria, the routine use of the microscope and the manufacture of the first antitoxin produced in this country west of New York City.

Early in his career Dr. Bierring narrowly escaped tragedy when, after a lump was discovered in his left leg with enlargement of the inguinal lymph nodes, the diagnosis of epithelioma was made and the leg amputated. Later on there was strong suspicion that the diagnosis might be in error but this blow was merely a challenge. His artificial leg stimulated rather than thwarted his talent for travel.

Dr. Bierring became head of the Department of the Theory and Practice of Medicine at the State University of Iowa after he had been in charge of Bacteriology and Pathology for eleven years. His many clinical papers during this period indicate that he was diligently applying the technical knowledge gained to the clinical problems he encountered. In 1910 he left Iowa City and for three years was connected with the medical school at Drake. For the next two decades Dr. Bierring practiced as a medical consultant in the emerging specialty of internal medicine. He was greatly in demand. During this time he was pioneering in the establishment of standards for licensure for the practice of medicine. He was busily engaged in prodding the public about such important matters as proper sewage disposal, pure water supply and the control of infections upon which our urban life so largely depends. He helped establish the National Board of Medical Examiners and was influential in changing the form of clinical teaching by the introduction of practical bedside examination of patients as part of the requirement for certification by the National Board of Medical Examiners.

Dr. Bierring can properly be called the father of Alpha Omega Alpha since, though he did not found it, it was through his thoughtful and constructive work that it reached its full stature as a symbol of distinguished excellence in medicine. As president of Alpha Omega Alpha for 36 years and editor of THE PHAROS Dr. Bierring saw the unprecedented growth of American medicine with great improvement in quality of research, scholarship and practice. Members of Alpha Omega Alpha may be proud that through his wise statesmanlike control this growth has been not only very extensive in scope but very fruitful in encouraging excellence.

It was fitting that in recent years after retiring from the directorship of the Iowa State Department of Health he assumed responsibility for the Division of Gerontology and Cardiology.

Thus Dr. Bierring grew with the years. Despite his preoccupation with matters of aging he paid no attention to any hypothetical conflict between generations. He wasted no time, as many older people tend to do, scowling at the activities and antics of the young. Rather he advanced our understanding of how the great potential for effective enterprise and even creative achievement are not the prerogative of youth but constitute a challenge to those whose years but not whose capacities rank them as old men.

Perhaps Dr. Bierring's character can be summed up best in a story which Dr. Peyton Rous once told me, which I have related elsewhere: "It occurred at the time when the cornerstone of the University Hospitals building was laid in Iowa City in the middle 1920's. The great ceremonial occasion was attended by representatives from many universities and institutions. As Dr. Bierring and Dr. Rous were being driven to the affair to hear the great speakers, they came upon the scene of an accident. A runaway horse had overturned a wagon, and a young farmer lay injured. Dr. Bierring immediately got out and attended to the medical needs of the injured man, while the procession moved on without him. Only when the injured man was cared for did Dr. Bierring, unruffled and unaware of the impression he had made, move on to the pavilion of the elect where the speeches were in progress."

Others have listed the many marks of distinction, the numerous memberships, honors, and offices in the outstanding medical societies which came Dr. Bierring's way. He accepted them with good grace but without any notion that they conferred infallibility. The essence of Dr. Bierring's contributions was his vision of the larger aspects of medicine, its potential grandeur and the value of encouragement of scholarship, seeking out the best in learning, in teaching, in research and in practice. His several missions accomplished, Dr. Bierring died in the fullness of years, ripe in wisdom, mellow in the knowledge of history so much of which he himself had seen at first hand. American medicine may well take pride in a person whose accomplishments are worthy of the heroes of old. We all share with his family the sorrow inevitable with bereavement, and we sympathize with the members of his family who survive him, but this sorrow happily is tempered by our contemplation of his great achievements, his wisdom and his character.

—WILLIAM B. BEAN, M.D.

REFERENCES

Bierring, Walter Lawrence: President of Alpha Omega Alpha from The Pharos, **6**:3-4, 1943.

Bierring, Walter L.: A Golden Epoch in American Medicine, the William W. Root Lecture, The Pharos, **16**:12-21, 1952.

Bean, William B.: An Appreciation, Walter L. Bierring, M.D., Geriatrics, **16**:355-359, 1961.

Retirement

After 17 years of deft and dedicated steering of the Department of Physiology at the SUI College of Medicine, Dr. Harry M. Hines retired as head of his Department in July, 1961.

One should underscore the "his," because during the years under his direction, the Physiology Department showed a phenomenal growth in number of graduate students, and in its reputation as an excellent training ground for young people eager to teach and to carry on research in the biological sciences.

The "vital statistics" on Dr. Hines are, of course, available in AMERICAN MEN OF SCIENCE, so they need not be repeated here at any length. He was born in Spencer, Iowa, and received his undergraduate and graduate training at SUI—B.A. in 1916, M.S. in 1917, and Ph.D. in Biochemistry in 1922. Between earning his M.S. and his Ph.D., he served in the Armed Forces in World War I. Thereafter he went "up the ladder" in the Department of Physiology, serving as instructor, assistant professor, associate professor and, in 1936 and subsequent years, as professor. He was appointed head of the Department in 1944, succeeding Dr. John McClintock, and served in that capacity until his retirement in July, 1961.

Dr. Hines holds memberships in several professional societies, and has been honored on several occasions for his research into problems relating to physical medicine. He also serves on the editorial board of THE AMERICAN JOURNAL OF PHYSICAL MEDICINE. His research interests cover many aspects of physiology, and he has made many important contributions, through personal and directed research, to the areas of nerve and muscle degeneration and regeneration, diseases of muscle, peripheral circulation and blood flow; and he has directed pioneer work in the physiologic effects of microwaves.

Harry M. Hines, Ph.D.

The writer of the above paragraphs first became associated with Dr. Hines in 1940, as a brand-new Ph.D., to work with him on problems of neuromuscular regeneration, under a grant from The National Foundation for Infantile Paralysis, and the work went on for the next 10 years. Those were rugged, busy years—but, in retrospect it is clear that an old observation was vindicated: A young scientist may not realize it at the time, but service under a tough, hard-to-satisfy mentor constitutes a superlative atmosphere in which to grow up and to form critical, honest and productive habits of mind.

Dr. Hines always had, and still has, a deep personal interest in each graduate student who received a degree in the Department of Physiology. He actively recruited students, saw to it that they were supported and trained in the best possible manner, and continued to follow their careers with an avid interest after they left SUI. He "kept in touch."

Dr. Hines' many colleagues and former students continue to regard him, after his retirement, as a wise and sympathetic counselor and friend.

JOHN D. THOMSON, Ph.D.
associate professor of physiology

New Head of Dermatology

Robert G. Carney was born April 25, 1914, in Ann Arbor, Michigan, the son of Robert J. Carney and Frances Sweet Gibson. His father, Robert J. Carney, was a professor of chemistry and director of the Chemistry Stores Department at the University of Michigan. On June 18, 1939, he was united in marriage with Dorothy Ann Briscoe at Ann Arbor, Michigan. Their family of four children includes Robert, aged 19, and three daughters, Patricia, aged 17, Kay, aged 15, and Peg, aged 13.

Dr. Carney was educated in the public grade and high schools in Ann Arbor, and obtained an A.B. degree *cum laude* from the University of Michigan in 1935. His M.D. degree was conferred by the same university in 1939, and during his college work he was elected to membership in Phi Beta Kappa and Phi Kappa Phi honor societies. He was also a member of Galens, a medical honor society, and Phi Rho Sigma fraternity. His internship was at the State University of Iowa Hospitals, 1939-40, and a residency in dermatology and syphilology followed from 1940 through 1943.

For some thirty-nine months, from 1943-1946, Dr. Carney served in the Medical Corps of the U. S. Naval Reserve on active duty, first at USN Hospital, Farragut, Idaho, and later at USN hospitals in New Guinea and Western Australia. For a time he was medical officer aboard the *USS Clytie* AS

26 (Submarine Tender) based at Freemantle, Western Australia, and New London, Connecticut, and following his severance from the *USS Clytie* he was a medical officer until his discharge at USN Hospital, Great Lakes, Illinois.

He was appointed an associate in dermatology and syphilology, and held that position from 1946 to 1947. His professorial appointments were as follows: assistant professor in 1947; associate professor in 1951; and professor in 1954. He has held the post of attending dermatologist at the Veterans Administration Hospital, Iowa City, from 1952 until the present. His appointment as professor and head of dermatology and syphilology was made on February 1, 1961.

His society memberships include the following: Johnson County Medical Society, American Medical Association, Iowa Dermatological Society, Iowa Clinical Medical Society, Chicago Dermatological Society, Society for Investigative Dermatology, American Academy of Dermatology and Syphilology, and the American Dermatological Association. He is, at present, on the membership committee of the American Dermatological Association, holding a six-year appointment.

Dr. Carney is also a member of the U. S. Pharmacopoeia Committee of Revision and chairman of the U.S.P. advisory panel on dermatology. He is also a member of the Committee on Cosmetics of the AMA and of the Advisory Committee to the Food and Drug Administration, and is a dermatologic consultant to the Council on Drugs and to the National Better Business Bureau. In addition, he is a former chairman and present member of the Iowa Medical Bulletin, a member of the Scientific Exhibits Committee of the Iowa Medical Society, and the University, and a member of the Hospital Records Committee and Formulary Committee.

In addition to his other accomplishments, Dr. Carney has written numerous scientific articles and with Dr. Nomland is the co-author of a book, DERMATOLOGY FOR THE STUDENT AND PHYSICIAN, published in 1955. His teaching ability, administrative talents, discerning clinical judgment, ready wit, and affable personality have made us happy and proud at his selection as professor and head of the Department of Dermatology and Syphilology.

C. E. RADCLIFFE, M.D.
associate professor of dermatology
and syphilology

New Head of Physiology

On September 1, 1961, Charles Adrian Michael Hogben, M.D., Ph.D., assumed the duties of professor and head of the Department of Physiology at the State University of Iowa College of Medicine, succeeding Dr. Harry Hines, who retired after serving in this same capacity for 17 years.

Dr. Hogben was born on November 21, 1921, in Buckinghamshire, England, and became a citizen of the United States in 1944. He received the degree of bachelor of science in 1941, and the degree of doctor of medicine in 1943 from the University of Wisconsin. Following graduation from medical school, he served as an assistant in the Department of Physiology at the University of Wisconsin from 1941 through 1943, and became a teaching assistant in the same department in 1943. Following an internship at the Philadelphia General Hospital, he entered the Medical Corps of the United States Army, where he served for a period of two years. Upon release from military service, he became a fellow in medicine at the Mayo Clinic, where he served for a period of four years. During that

Robert G. Carney, M.D.

C. A. M. Hogben, M.D.

period he worked in the areas of clinical medicine and physiology, and the degree of doctor of philosophy was conferred upon him in 1950 by the University of Minnesota.

During 1950, Dr. Hogben was a National Research Council fellow in medical science at the Zoophysiology Laboratory in Copenhagen, Denmark. After that year abroad, he returned to this country to become medical officer in the Section on Kidney and Electrolyte Metabolism of the National Heart Institution in the National Institutes of Health at Bethesda, Maryland, where he served until his appointment as head of the Department of Physiology at the State University of Iowa.

In addition to the appointment at the National Institutes of Health, he was a research associate in medicine at the George Washington University Medical School, and a guest lecturer in the Department of Physiology at the University of Minnesota, where he offered a course in gastrointestinal physiology.

Dr. Hogben is a member of the American Physiological Society, Phi Beta Kappa, Sigma Xi, the Philadelphia Physiological Society, and the Medical Society of the District of Columbia. He is the author or co-author of numerous scientific articles which have been published in the principal physiologic and medical journals.

New Head of Pediatrics

Dr. Donal Dunphy assumed his duties as professor and head of the Department of Pediatrics at the SUI College of Medicine on September 1, 1961, succeeding Dr. W. W. McCrory.

Dr. Dunphy was born in Northampton, Massachusetts, on February 24, 1917. He received his bachelor of arts degree in 1939 from Holy Cross, and his doctor of medicine in 1944 from the Yale University School of Medicine. Following completion of his basic medical studies, he served an internship and a residency in the New Haven General Hospital, and was appointed instructor in the Department of Pediatrics at the Yale University School of Medicine in 1947, where he served for a period of three years. Afterward, he entered the private practice of pediatrics in Stratford, Connecticut, and was attending pediatrician at the Bridgeport General Hospital. Simultaneously, he served as a part-time fellow in the Department of Pediatric Cardiology at the Yale University School of Medicine until he entered the military service in 1953.

He served for two years in the U. S. Army Medical Corps in Landsthul, Germany, as pediatric consultant for the United States Army, European Theater. Upon completion of his military duty, he was appointed associate pediatrician at the University of Buffalo School of Medicine in 1955. In 1956 he was elevated to assistant professor in the same department and served in that capacity until

Donal Dunphy, M.D.

1959. During that period he was appointed director of the Child Growth Study, director of the Outpatient Department, and director and co-investigator of the Child Development Program, a collaborative project of the National Institutes of Health and the National Institute of Neurological Diseases and Blindness at the Childrens Hospital in Buffalo. In 1959 he became associate professor in the Department of Pediatrics at the University of Buffalo School of Medicine, and held that title until his appointment as professor and head of the Department of Pediatrics at the University of Iowa. He is a member and diplomate of the American Board of Pediatrics, and has published numerous articles in pediatric and other outstanding medical journals.

YOU'LL HEAR ABOUT

Casualties in nuclear-weapon warfare

at the

ANNUAL MEETING OF THE IOWA

MEDICAL SOCIETY

May 13-16

Veterans Memorial Auditorium, Des Moines

Eye Color and Skin

Brown eyes appear to predominate in patients with atopic dermatitis, skin disease due to familial allergic tendencies, reports Dr. Robert G. Carney of the Department of Dermatology, University of Iowa, Iowa City.*

Studies conducted at two intervals during the past 10 years seemingly confirm this impression. Almost two-thirds of the patients with atopic skin diseases have had brown eyes, while the incidence of brown eyes in three control groups was only about two-fifths.

When the incidence of brown and hazel eyes was tabulated against the incidence of blue, green and gray eyes, "those with atopic dermatitis showed an incidence of 64 per cent brown and hazel eyes. . . . When eye colors were grouped in 3 classes —the brown, the blue, and the hazel-green-gray in-betweens—and compared, the same marked preponderance of brown showed up in the atopic dermatitis group, 56 per cent of the whole, against 34 per cent or 35 per cent in the controls," Dr. Carney said. "Perhaps eye color serves as a rough index of skin pigmentation." The skin of dark skinned persons tends to become leathery and hardened more readily "and perhaps the darker skinned white person is more prone to atopic dermatitis, or more prone for the disease to last longer."

The University Dermatology Clinic at Iowa now is recording eye color in all patients, trying to determine whether there may be other skin diseases prone to go along with brown or blue eyes. Skin pigmentation in relation to other skin diseases also will be studied, the author said.

In a discussion following the paper (presented at the annual meeting of the American Dermatological Association), Dr. A. Fletcher Hall, of Santa Monica, Calif., related Dr. Carney's findings to racial differences. He pointed out that "brown-eyed individuals are more likely to be a mixture than the blue-eyed. The blue-eyed people are more likely to indicate an Anglo-Saxon or Nordic inheritance, whereas the brown-eyed will most likely represent one or more Mediterranean, Latin, Gallic, or Oriental strains.

"The personality patterns, or the emotional patterns, of the blue-eyed group of races . . . are recognized as being different in a great many ways from those of the brown-eyed races. The brown-eyed races, I believe, are more likely to have emotional and personality patterns which would lend themselves to neurogenic or psychogenic conditions. Whatever factor there may be of a psychogenic or neurogenic nature in atopic dermatitis would be more likely to be found, I believe, in the races that one ordinarily associates with brown eyes."

* Carney, R. G.: Eye color in atopic dermatitis, ARCHIVES OF DERMATOLOGY 85:57, (January) 1962.

The AMA Annual Meeting

By LEONARD LARSON, M.D.
President, American Medical Association

Each year at this season it is customary for the president of the American Medical Association to extend an invitation to all American physicians to attend the AMA's annual meeting. Each year it is also expected of the president to state that "this year's meeting will be the best yet."

This year I have no hesitation in proclaiming that the 1962 Annual Meeting June 24-28 in Chicago will be an excellent scientific session that will offer much solid, comprehensive information that will be of great value to those of us in the practice of medicine.

Dr. Samuel P. Newman, chairman of the Council on Scientific Assembly, and his colleagues, together with the Council's new secretary, Dr. George R. Meneely, has done a splendid job in studying the entire field of medicine and determining in which areas there has been substantial progress worth reporting to the men in practice.

As usual, the program for the meeting is scheduled for publication May 19 in the JOURNAL OF THE AMA. You will be able to judge for yourself whether I am right in saying that the program for the 1962 meeting is the finest ever assembled for the benefit of the American medical practitioner.

Theme of the meeting will be "Medicine in the Atomic Age." This is a broad, generalized theme that covers everything in medicine. And that is just what the scientific program will do.

The twenty-one sections concentrating on the medical specialties are pooling their talents and resources to bring the top men in the nation to deliver papers in areas such as Nuclear Medicine, Mental Health, Tissue Transplantation, Inflammatory and Ulcerative Diseases of the Small Intestine, Inhalation Therapy, Clinical Cardiology and Anticoagulant Therapy, and Diagnostic Problems and Exfoliative Cytologic Methods.

And for those of you who swore "never again!" following the last annual meeting in Chicago in 1956, allow me to point out that the 1962 meeting will be in the swank new McCormick Place, completely air conditioned. The steamy heat and cramped quarters of the old Navy Pier are just an unpleasant memory.

See you in June in Chicago!

1962 Annual Meeting
IOWA MEDICAL SOCIETY
Veterans Memorial Auditorium
Des Moines
May 13-16

Scientific Articles

Current Concepts of Shock Management

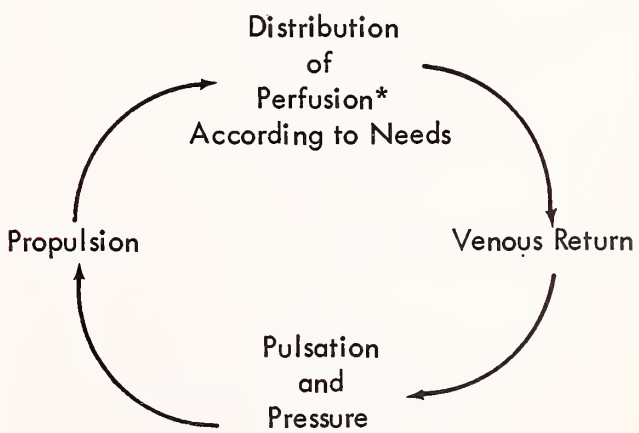
EDWARD E. MASON, M.D., and
ROBERT T. KUNAU, JR.
Iowa City

PERFUSION IS THE CRUX of our modern understanding of shock and of its treatment. There are no radically new ideas, but some basic concepts which originally were known only to a few people and which were difficult to test except in carefully controlled laboratory experiments have now become the basis for bedside treatment. The clinician has become a practical physiologist and pharmacologist. He has at his command pharmacologic agents which are extremely powerful and helpful if used properly, but which are dangerous if misused.

As is indicated in Figure 1, normal circulation has as its central theme the distribution and perfusion according to tissue needs. Shock is a general deficiency of tissue perfusion, which is unequal in distribution and duration. There is a redistribution of blood flow, with preservation of perfusion of brain and myocardium through reflex vasospasm and the influence of circulating norepinephrine. Skin and subcutaneous tissues are deficient in blood flow. In severe hemorrhagic shock or traumatic shock, important visceral areas such as the kidney are also devoid of blood flow. As the flow of blood through tissues is slowed, the blood loses its suspension stability. There is a clumping together and even an adherence of cells, with a separation of cells from plasma. Blood which should be a sol and a suspension becomes a gel and a sludge, with a consequent increase in viscosity and, at times, thromboses in the microcirculation. In some areas the thrombosis may involve larger vessels, with infarction of wedges of tissue or even, occasionally, bilateral renal cortical necrosis, complete adrenal infarction, or thrombosis of a pituitary gland. Usually, such severe shock results in the death of the patient.

Adequate circulation or perfusion of all organs according to needs is dependent upon an adequate venous return to the heart. This requires that the patient have a normal blood volume, and under some circumstances may require actually an increased blood volume. Shock also may be present in a patient who has an inadequate volume of extracellular fluid or even a severe deficiency of

COMPONENTS OF NORMAL CIRCULATION



*Define Shock Here

Figure 1. Shock is a disturbance of normal tissue perfusion which may result from loss of blood volume, loss of venous tone, sudden inadequacy in cardiac function, loss of suspension stability and fluidity of blood, excessive and inappropriate vasomotion, or a combination of many of these factors.

From the Department of Surgery at the SUI College of Medicine.

total body water. Venous return is dependent upon support of the veins through intrinsic tone and through muscular activity within fascial compartments of the extremities. As the blood returns to the heart, it is compressed and reejected into an elastic arterial tree. During systole, the elastic arterial tree accumulates some of the potential energy for continued propulsion of the blood stream during diastole. This pulsatile flow is converted to a more continuous flow in the microcirculation distal to the precapillary sphincter. The largest blood vessel smooth muscle component is found in the precapillary sphincters. Neurohumeral regulation of these sphincters controls the flow of blood through regions and small areas of the vascular bed, and at the same time provides the peripheral resistance which contributes to the maintenance of a normal blood pressure. The precapillary sphincters prevent loss of effective blood volume into a capillary bed that potentially is greater in capacity than the normal blood volume.

The treatment of shock has as its objective a restoration of normal perfusion to all of the body tissues, each according to its need. It is not enough to reestablish normal blood pressure, for normal blood pressure is not synonymous with good tissue perfusion. In addition, the patient must have warm, pink, dry skin. The capillary bed, as seen through the finger- and toenails, should refill promptly after compression. The patient should be alert, and should no longer suffer from thirst and air hunger. There should be a flow of urine at least at a minimum rate of four or five drops per minute.

RESTORATION OF BLOOD VOLUME AND VASOMOTION

In order to establish normal circulation for a patient who appears to be in shock, the clinician would do well to consider, in logical sequence, the items listed in Figure 2. The vast majority of patients in shock have a deficiency in blood volume or in extracellular fluid volume, and if these are restored to normal, the other complicating factors of vasospasm and sludging of blood don't usually require any special attention. Physicians have rightly emphasized the importance of treating shock with adequate amounts of blood. Many patients with so-called irreversible shock are found at autopsy to have died from inadequate replacement of blood loss. It would seem better to risk overtransfusion of a patient than to become too much concerned with the use of vasopressors and cortisone, only to find too late that the patient should have had blood. If blood is not immediately available for a patient with hemorrhagic or traumatic shock, then medium molecular weight dextran may be used. It is important that circulation be maintained, even through a considerable dilution of red blood cells. If decreased numbers of red blood cells are passing rapidly through the tissues, there will still be adequate oxygenation and removal of carbon dioxide, as well as an adequate supply of other substrates and the removal of other wastes. When blood becomes available, it can then be used. If dextran is used, it is important to draw blood for cross matching before one starts the dextran infusion, since the presence of dextran may interfere with the cross match.

In some patients, it is rather obvious that even though the blood volume has been restored, the circulation still remains poor. Then, the next most common general area for therapeutic consideration is that of abnormal vasomotion. This can be of two general types: (1) so-called peripheral vascular collapse, and (2) excessive vasospasm. An obvious and common situation for peripheral vascular collapse is that in which a patient has received excessive amounts of sedation or anesthetic agents. It may then be necessary to use a vasopressor to increase the general tone of the vascular system and to improve venous return to the heart.

If a vasopressor is to be used, it should be an effective one. Norepinephrine is the natural mediator of nerve impulses from the adrenergic nerves to the smooth muscle of blood vessels. In addition, it is the natural humoral agent that is released from the adrenal medulla to provide a generalized increase in vascular tone. Therefore, it would seem to be the agent of choice. Because it is such a powerful agent, its misuse has led to complications that have made some people afraid to administer it. If norepinephrine is used in an intravenous infusion, there is some likelihood of spasm of the vein and leakage of the solution outside of the vessel. The result is a profound local ischemia of the skin and subcutaneous tissues. Many instances of slough have been observed, and some of them have been reported. It was observed that infiltration of such an area with an antagonist to norepinephrine such as phentolamine would prevent the slough.

Other agents such as heparin and hyaluronidase have also been used with adrenolytic agents to prevent local ischemia in the areas of infiltration. Experimentally, it has been shown that if 4 to 8

Shock Therapy?
Restore Perfusion!
Via
Volume
Vasomotion
Velocity and Viscosity
Viability and Cellular Integrity

Figure 2. Treatment of shock is urgent and requires attention first to the commonest and most prominent features of shock. When blood volume and extracellular fluid volume are normal but the patient's poor tissue perfusion persists, then attention should be directed toward the less common and more difficult problems of shock. With time, these latter factors become the prominent defects of resistant shock. From the standpoint of frequency of these aspects of shock and of the time factor in individual patients, this sequence for attention seems appropriate.

mg. of phentolamine is mixed with norepinephrine in the intravenous infusion, necrosis is prevented when this mixture leaks into the subcutaneous tissues. In addition, it has been demonstrated that the blood pressure can be supported just as well with the mixture of phentolamine and norepinephrine as with norepinephrine alone. It thus appears that phentolamine, at least in the doses required, is not a complete antagonist of norepinephrine, but that it does eliminate the undesirable, excessive vasospasm that otherwise occurs locally in the area of infiltration.

There is reason to believe that some of these so-called adrenolytic agents have a beneficial effect on the visceral circulation. Just as they prevent local slough of the skin, they also seem to prevent slough of organs. This effect may be analagous to the phenomenon observed by Wiggers that sympathetic denervation made animals more sensitive to circulating norepinephrine. In patients who were receiving larger and larger doses of norepinephrine without regaining a satisfactory blood pressure, without urine flow, with paleness of the skin and, in one instance, of a colostomy mucosa, we have found that adding phentolamine to the norepinephrine infusion brings about a better blood pressure, an improved appearance of the skin (and of the colostomy mucosa) and an almost immediate resumption of urine excretion. The addition of phentolamine, moreover, has made it seem easier to discontinue the norepinephrine.

It is known that norepinephrine alone as an infusion, if given in somewhat excessive amounts, will lead to a loss of plasma from the blood stream. This seems to be due to excessive vasoconstriction in some areas, to ischemia and to the leakage and sequestration of plasma.

There are many agents which affect the production or release of norepinephrine at its areas of storage in the presynaptic region of the nerves. The presence or absence of norepinephrine in its normal areas in nerves seems to influence the effect of circulating norepinephrine. Without going into detail, and in fact admitting that little is known about the actual mechanism of action of these drugs at the effector level, one can assert empirically that agonists and antagonists have different effects in different species of animals and in accordance with the presence or absence of other drugs and anesthetic agents. Furthermore, each of these drugs also has different effects at different dosage levels. It therefore is not surprising that norepinephrine and a so-called antagonist, phentolamine, can be mixed in the same solution so as to achieve a beneficial effect from each of the drugs and at the same time eliminate certain deleterious effects through their mutual competition or antagonism.

RESTORATION OF SUSPENSION STABILITY

If, in the sequence of therapeutic logic, it is concluded that the patient's shock is no longer a volume-deficiency problem, and that abnormal vasomotion is not contributing to the patient's poor tissue perfusion, then the next question to be asked is whether there is a loss of suspension stability—in other words, a sludging of blood. This can be answered by examining the scleral vessels under 40-power magnification, such as the opthalmologists use in some of their work.

The microcirculation is said to be greatly disturbed, with many vessels filled with agglutinated cells and with stagnation of blood. Since equipment to examine scleral vessels is not generally available, it may be desirable to consider the possibility of stagnation whenever the aforementioned abnormalities in blood volume and vasomotion have been excluded and when the patient still is not excreting urine.

Suspension stability can be reestablished through the administration of low molecular weight dextran. This is a dextran of 40,000 average molecular weight, in contrast to the dextran that has been generally used in this country, with an average molecular weight of 70,000. Investigation of the use of low molecular weight dextran was carried on initially by Swedish workers. When dextran first became available, the British tended to use a rather high molecular weight product, and the American workers settled for one of medium molecular weight, but still sufficiently high to make it stay in the vascular bed. It was thought that if the molecular weight were too low, the dextran would rapidly leak out of the vascular bed and would not provide the desired plasma-expander effect. The low molecular weight dextran is of a size that does leak through the glomerular filter, and consequently it does not expand plasma volume for a very long period of time in a normal person. However, the size of the dextran molecule has other effects. The larger it is, the more it tends to produce increased viscosity, to interfere with blood clotting and, perhaps, to achieve other undesirable effects.

The low molecular weight dextran gives the greatest plasma expansion in the patient who has poor kidney function, poor circulation and, in fact, a tendency toward sludging. It coats albumin and cells, and coats the endothelium. It carries a slightly negative charge that probably helps repel one surface from another. The dextran molecules are symmetrical and tend not to adhere to one another. The viscosity of the blood is lowered. The cells stay in suspension, and the blood flows much more rapidly through the microcirculation.

Besides providing plasma expansion for a brief period of time and reestablishing suspension stability of cells, the low molecular weight dextran does leak through the glomerular filter and acts as an osmotic diuretic. There is a great deal of experimental and some clinical evidence indicating that an osmotic diuretic alone is a beneficial agent in patients who are predisposed to ischemic kidney damage. Mannitol has also been used. The low molecular weight dextran comes in a saline solution, and if an osmotic diuresis does occur, the

concomitant loss of electrolytes is adequately compensated for by the saline in the solution.

CORRECTION FOR MEMBRANE AND CELL FUNCTIONS

If the poor circulation doesn't seem to be due to, or fails to respond to therapy for, abnormalities in volume, vasomotion or viscosity, then one must consider the possibility of some abnormality in cell-membrane permeability and cellular metabolism or viability. This is an area in which therapy is still quite empirical, but where cortisone is the agent most likely to be effective. There are very occasional patients in whom there is actually an adrenal insufficiency either because of adrenal vessel thrombosis as a part of the shock episode, or because of a disuse atrophy from a prolonged period of steroid treatment. In general, however, hemorrhage does not lead to adrenal insufficiency. Trauma seldom leads to adrenal insufficiency, and even a patient with endotoxic shock probably has normal adrenal function in most instances. However, there are some patients who seem to respond to massive doses of adrenal corticosteroids. Such therapy is seldom required in hemorrhagic or traumatic shock, but it is often required in endotoxic shock.

There are a number of disease processes in which cortisone seems to be effective in altering the permeability of the endothelium. Lipoid nephrosis, pseudomembranous enterocolitis and endotoxic shock may have something in common in this respect. As one sees patients with endotoxic shock and pseudomembranous enterocolitis, one becomes impressed with the concept that these are variations of the same process. There are some patients who never have a striking fall in blood pressure, but who lose large amounts of fluid from the gastrointestinal tract. There are other patients who go into profound peripheral vascular collapse and have no evidence of abnormal bowel function.

Undoubtedly some of the differences in the reactions of patients is due to the particular organism that is producing the endotoxin and to the dosage of endotoxin that the patient is receiving. There are also differences in the responses of various patients. Some have had gastrointestinal operations. Others have had no surgical procedures. Some have had antibiotics, and others have had none. As in the rest of the field of shock, there are many variables, and it would be most difficult to prove, in a carefully controlled, scientific manner, with adequate statistical methodology, that similar patients treated in slightly different ways show different and treatment-dependent responses. This is where the incomparable human computer —the clinician at the bedside, with his vast experience and with his ability to make overt observations of the patient's signs and symptoms and to assimilate subliminal data—is able to provide care that may seem, at times, to be more artistic than scientific.

Empirically, the patient with endotoxic shock who has received plasma expanders, appropriate antibiotics and possibly either vasopressors or adrenolytic agents, or both, and who still does not appear to be improving should be treated with massive doses of hydrocortisone, up to one gram in divided doses on the first day. Such treatment seems to help reestablish normal function of the cell membranes. It may bring some fluid out of cells into the extracellular fluid. It probably brings protein-rich fluid back into the vascular space. It may restore normal responsiveness of vascular smooth muscle. But whatever the mechanism, this massive use of hydrocortisone frequently seems to be specific for the patient with endotoxic shock.

As a part of treating the patient at the cellular level, one should keep in mind that excessive fever greatly accelerates metabolism, besides being the result of increased metabolism, and that cooling the patient down to a normal temperature may benefit him by decreasing the excessive demands on his circulatory system and vital organs. After all, the general problem of shock treatment is one of providing adequate amounts of oxygen and substrates to the tissues as they are needed. If the metabolism of these materials is at an excessive rate, it alone will lead to an oxygen deficit, to an accumulation of waste products and to additional cellular dysfunction, especially in areas of poor circulation. General body cooling is not a panacea, but is an adjunct requiring caution, skill and either personal experience or familiarity with the pertinent literature.

In the occasional patient who has been subjected to very severe or prolonged shock and in whom tissue damage has occurred, with release of thrombokinase and consequent microthrombi, a bleeding tendency may develop from a deficiency of clotting factors as part of a generalized intravascular thrombosis. It may be desirable, under such circumstances, to treat the patient with heparin.

If the clinician thinks through all of the above possibilities, he should cover most of the areas in which he can help the shock patient. He should not be satisfied with his treatment until adequate perfusion of all tissues has been reestablished and is being maintained.

MUCH DEPENDS ON THE PHYSICIAN'S CLINICAL JUDGMENT

Probably the most controversial area in the treatment of shock today is that of vasomotion. For most patients, a clinician who refused to make use of vasopressors and adrenolytic agents could still be very effective. Yet, there are a few patients who need such treatment. This is particularly true of the traumatized patient who may have a great excess of reflex vasospasm in addition to his loss of blood. There even are a few patients with hemorrhagic shock or cardiogenic shock, and certainly there are some with endotoxic shock,

who have abnormal vasomotion as a major problem.

The use of norepinephrine in a patient who has an unsatisfactory blood pressure has gained wide acceptance, even to the extent that some patients are treated with vasopressors long after they have demonstrated failure to respond to such treatment. There is no experimental evidence specifically to support the use of vasopressors in the treatment of shock in human beings. Many animal experiments have been reported in which hemorrhagic and traumatic shock has been lessened, in which animals' lives have been prolonged, and in which larger numbers of animals have survived because of the use of adrenolytic agents. But there is very little in the literature describing the use of those antagonists for the treatment of shock in man. After talking to a few people who have used such agents in selected cases, and from limited personal experience, one of us (Dr. Mason) has concluded that these agents have been helpful, but that it would be very difficult to assemble the evidence in such a way as to prove or defend them against those who condemn them.

It has been very difficult to design experiments in the animal laboratory to result in the deaths of dogs called "controls" and in the survival of dogs treated with specific agents. When actual shock patients are treated, there are many additional variables, and "control" is much more difficult. No two patients are alike. It would seem that if agonists such as norepinephrine, and antagonists such as phentolamine or Dibenzyline are to be used, they must be used by clinicians with considerable experience in evaluating the severity of shock and the responses of patients to a variety of treatments, and that results may need to be evaluated solely on the basis of clinical judgment in individual cases, rather than on the basis of large, statistically sound, "controlled," randomized experiments.

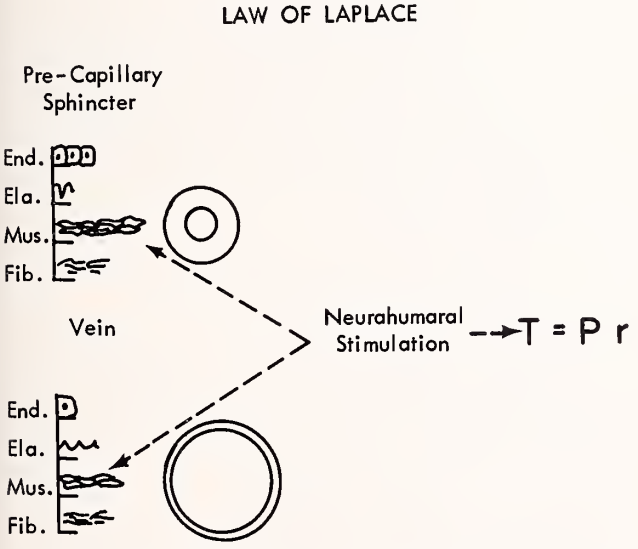


Figure 3. Tension in the walls of vessels may be increased by neurohumoral stimulation of the smooth muscle component, and this may improve venous return. The danger of excessive stimulation consists of closure of precapillary sphincters and ischemic damage. At any given level of vascular tone, the blood pressure, distention of vessels and stability of the system are dependent upon the blood volume. In shock, this system is unstable, and like a balloon it tends toward the filling of large-lumen veins and the closure of small-lumen precapillary sphincters. These are the chief variables, when one looks at the system as a relatively simple one. Actually, when the hydraulic factors and the problems of a circulating suspension of cells are added, the picture becomes even more complex.

The level of serum transaminase determined serially in patients may be the best index of the extent of general cellular damage that is occurring and has recently occurred in any given patient who is successfully treated for shock. The development of new electronic apparatus for continuous recording of vital signs and for the analysis of cardiac output and adequacy of regional circulation may allow more precise and objective documentation of the effectiveness of some of our therapies. Such equipment is not sufficiently developed, but there is evidence of rapid progress. In the meantime, the clinician must continue to do his best to individualize treatment, to use all modalities that seem to contribute to the improvement of circulation, and to avoid doing harm.

A recent review by Burton of the relationship of structure to function in the tissues of blood-vessel walls has suggested the illustration of the law of LaPlace that is shown in Figure 3. It may help to explain some of the objectives that seem important in the treatment of abnormal vasomotion in cases of shock. The law of LaPlace says that the tension on the wall of a container is equal to the pressure on the inner surface of that container multiplied by the radius. Burton draws an analogy between the vascular system and a balloon that is partially distended by air. The partially inflated balloon tends to be a rather unstable system, tending to collapse in a given area and to extend to a wide diameter in others. When the entire balloon is fully distended, it becomes stable, and if all of the air is removed, it again becomes stable.

The basic objective in the treatment of shock is to establish sufficient distention and tension of the walls of the entire vascular tree so that the whole system is stabilized and remains open. This, in turn, should allow a generally adequate blood flow and perfusion of all tissues. If the vascular bed has been partially emptied or is relaxed, there is a reduction of intravascular pressure, and there is also less tension on the wall of the vessel. The remaining blood tends to move into the more distensible portions of the system, and those portions of the vascular bed that have the smallest lumens tend to collapse.

The obvious treatment under such circumstances would be a redistention of the vascular bed—in other words, the administration of blood-volume

expanders. There are other situations in which the main problem may not be a lack of volume of contained fluids, but a change in the tension on the walls of the vessels. In peripheral vascular collapse, there is a real need for vasopressors, and the objective is to increase the tone of the blood vessel walls to such an extent as to reduce the volume and to increase the venous return. However, this must not be carried to the point of occluding the smaller vessels. As long as precapillary sphincters do not close and cause ischemia of vital organs, the administration of norepinephrine is advantageous. The special sensitivity of vessels in the human kidney makes observation of kidney function an extremely valuable part in the evaluation of the efficacy of vasopressor treatment.

If the only change in the patient is a rise in blood pressure, following administration of norepinephrine, then some other or additional treatment should be tried. The question of the adequacy of blood volume and extracellular fluid volume should again be raised. The precapillary sphincter has a proportionately large amount of smooth muscle, and has, in addition, a thick endothelial layer. These vessels have small radii. Their purpose is to provide a normal peripheral resistance and to regulate blood flow through the regional capillary beds. In hemorrhagic shock, and especially with added trauma, there is marked neurohumeral stimulation which causes temporary occlusion of many of the precapillary sphincters and resultant ischemia of the tissues beyond. This may be advantageous for a very short period of time, in that it may keep blood flowing to the brain and the myocardium, but occasionally, even after the extreme vasospasm is no longer required, it may persist and become the chief cause of progression into irreversible shock. This obviously requires treatment.

At the University of Manitoba, a number of clinicians working with Dr. Nickerson have treated patients with generalized and excessive vasoconstriction, using the irreversible adrenergic blocking agent Dibenzyline. They have observed some fall in blood pressure. It is greatest in those patients who actually have deficiencies of total blood volume. In the patients who have adequate blood volumes, there is very little fall in blood pressure, but there is a widening in pulse presure. Such patients cease to perspire, their skin becomes warm, and they resume urine output.

In the final analysis, these are the tests of any treatment of abnormal vasomotion: (1) the appearance of excellent peripheral circulation and the indication of good visceral circulation by the flow of urine; (2) improvement in cerebration; and (3) a sustained blood pressure, as indicated by a good pulse and a widening in pulse pressure.

The most difficult to explain of the aspects of treatment for abnormal vasomotion is the use of agonist and antagonist, both at the same time. It seems almost to be wishful thinking to expect that excessive contraction of the precapillary sphincter can be eliminated by one agent, and at the same time that its agonist can be used to increase the tone of the veins and to mobilize pooled blood in areas of vascular collapse. At times, it seems that it would be desirable to remove all the endogenous neurohumoral stimulation that affects vasomotion. Clinically, the vasomotion appears to be so greatly disturbed as to contribute to poor perfusion. Empirically, however, the use of the agonist norepinephrine with an antagonist such as phentolamine seems to result in clinical improvement. The selective roles of action of agonists and antagonists in these circumstances are not well understood, but clinically the response is evident in signs of more satisfactory tissue perfusion.

SUMMARY AND CONCLUSION

It is noteworthy that the administration of drugs in the treatment of shock must always be secondary to blood and extracellular fluid replacement and treatment of the underlying cause of the shock. The general rule seems to hold that even with phentolamine added, low doses of norepinephrine are tolerated, whereas large doses, if required to elevate the blood pressure, are indicative of probable ultimate failure of such treatment.

The great challenge to the clinician is to maintain his equilibrium in the practice of the art of medicine, and at the same time to accept his responsibility in becoming a bedside pharmacologist and physiologist in order to make appropriate use of the powerful new tools that he can use in reducing mortality and morbidity—especially damage to the kidney.

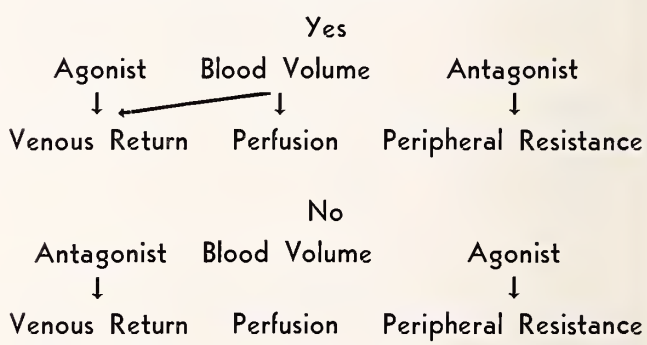


Figure 4. Blood volume replacement is desirable and necessary to enhance venous return and aid tissue perfusion. Similarly, the use of an agonist—an agent that causes contraction of smooth muscle cells in vessels—is desirable as a means of augmenting venous return. Excessive peripheral resistance, by its very nature, can aggravate poor tissue perfusion. An antagonist—an agent that lessens excessive peripheral resistance—may facilitate tissue perfusion. If the antagonist leads to a reduction in venous return, or if the agonist increases peripheral resistance and interferes with tissue perfusion, then the drug is undesirable.

Shock may respond to the administration of blood. It may require the administration of extracellular-like fluid in certain patients. It may require the elimination of abnormal vasomotion and the substitution of appropriate vasopressor therapy. It may respond to vasopressors alone, or to adrenolytic agents alone. Treatment may be unsuccessful in an occasional patient unless massive doses of cortisone are given along with specific antibiotics, plasma and other agents. Just as shock may be complex, so also must treatment occasionally be complex.

The treatment of resistant shock remains one of the greatest challenges to the art of medicine. That challenge must be accepted. We have the means. We have now a great deal of information derived from experimentation with animals. The patient with resistant shock who fails to respond to what are considered the standard, conventional forms of treatment, and who appears on the road to inevitable death if those forms of treatment are continued is in need of immediate, cautious trial of newer forms of treatment which may seem indicated, even though extensive reports of carefully controlled series of patients are not yet available in the literature. Blind persistence in the administration of any agent is not indicated on the basis that it is a standard form of treatment, if the patient has failed to show an acceptable response.

The objectives in the use of agonists and antagonists are summarized in Figure 4, and the point is emphasized that blood volume expansion is closely linked to therapeutic alteration of existing abnormal vasomotion. The purpose is to increase vascular tone enough to improve venous return, but this must not lead to ischemic damage of the kidneys or other vital organs. When there is evidence of excessive vasospasm, then antagonists of norepinephrine are required, plus blood volume expansion. The worst use of agents results when agonists are given to severely vasoconstricted patients. Likewise, the administration of adrenolytic agents to patients in severe peripheral vascular collapse should be avoided.

When the patient has a return of normal skin color and his skin is warm and dry, when there is a prompt return of color to nail beds and fingers after compression, when the patient is alert and no longer complaining of thirst or showing signs of air hunger, and finally, when urine is flowing at a rate of six or seven drops a minute, then and only then can the physician be satisfied with a "normal" pulse and a "normal" blood pressure.

Tissue perfusion is the objective in the treatment of shock.

The Lift in the Shoe

The frequency with which a simple procedure alleviates an aggravating symptom is known to all of us. In one area, particularly, that of low back pain, the trial of a simple shoe lift is often overlooked. When this is recommended by an irregular practitioner, its success is a source of embarrassment to the qualified practitioner.

Perhaps we do not use shoe lifts as much as we should because of the element of quackery which has grown up about it. Often enough, cases of back pain and even frank disk protrusions are helped by heel elevations on the asymptomatic side which divert the superincumbent weight, taking pressure off the constricted nerve root.

Certain conditions about the legs and feet are very definitely helped. These include such things as tenosynovitis or irritation of the bursa in the region of attachment of the tendo achillis. It is also helpful in relief of symptoms following partial ruptures of gastrocnemius or soleus muscles, or entire rupture of the plantaris tendon. A heel lift in such a situation will taken tension off the tendon and provide definite relief.

A shoe lift is far from a panacea and is all too frequently disappointing. Despite careful theoretic reasoning, many cases are not helped by the lift. On the other hand, it seems certain that many favorable responses are more than psychologically induced.

We are less empirically minded than we used to be—we must know exactly why a thing works before we use it. This is scientifically commendable. The impatience of the lay person is understandable. He wants relief and quick relief. If a simple procedure will do this while we study the problem, well and good.

The patient need not drift from his doctor's office to that of the unlawful practitioner if we focus on the obvious as well as the obscure.

—Editorial, NEW YORK STATE JOURNAL OF MEDICINE, 62:780, (Mar. 15) 1962

Listeriosis in the Newborn

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HERBERT P. MILLER, JR., M.D.
Iowa City

Until recently, Listeria monocytogenes has been isolated infrequently from human beings. From 1949 to 1954, just 22 cultures of Listeria monocytogenes were submitted to the U.S.P.H.S. Communicable Disease Center in Chamblee, Georgia, but 66 cultures were submitted in the following three years.[9] Until 1949, just 70 cases of listeriosis were reported in the literature,[1] but between 1950 and 1955, there were reports of 200 cases.[15] Additionally, between 1955 and 1957, a total of 150 publications on listeriosis appeared.[16] The increased frequency with which bacteriologists and physicians have recognized the organism and the diseases that it causes has resulted from their greater familiarity with it.

The purpose of this report is to transmit our experience in the isolation and identification of this organism, and to describe the clinical and pathologic aspects of one infectious disease process attributed to it, as observed recently at the State University of Iowa Hospitals.

CASE REPORT

A full-term female infant (Autopsy No. A-60-431) was born September 21, 1960, following an uneventful pregnancy. Her birth weight was 7 lbs. 6 oz., and she was her mother's fifth child, the four preceding pregnancies having been completely normal. There was no other significant family history. Shortly after birth, the infant developed a slight cyanosis, and mucus was suctioned from the throat. The child gradually became more cyanotic and lethargic, however, and was transferred to University Hospitals, Iowa City.

On admission, the child was having generalized convulsions, was cyanotic and did not respond to stimuli. Numerous small pink spots were noted, primarily over the trunk. The temperature was 99.4° F., the pulse was 160 per minute, and the respirations were 55 per minute. A few rales were heard in both lungs. The liver felt enlarged, and the spleen was just palpable. The deep tendon reflexes were depressed. The remainder of the physical examination was not remarkable.

The hemoglobin was 16.7 Gm./100 ml., and the white blood cell count was 14,650/cu. mm., with 28 per cent segmented polymorphonuclear leukocytes, 41 per cent bands, 13 per cent lymphocytes, 10 per cent monocytes, 1 per cent eosinophils, 4 per cent myelocytes, and 3 per cent metamyelocytes. X-ray examination revealed multiple ill-defined densities scattered throughout both lung fields, and a normal heart. A lumbar puncture showed only five white blood cells per cubic millimeter. Nose and throat cultures, blood and spinal

Figure 1. Focal area of necrosis and cellular reaction in the cortex of the adrenal gland. Hematoxylin and eosin. ×100.

Dr. Snyder is an associate in the Department of Bacteriology, and Dr. Miller is a resident in the Department of Pathology, at the S.U.I. College of Medicine.

fluid were submitted for bacteriologic examination.

The clinical impression was septicemia, and oxygen, intravenous fluids, and intravenous penicillin and chloramphenicol were administered. Dilantin was also given for the convulsions. Despite these measures, the infant's condition deteriorated, her cyanosis deepened, and her rales became coarse. Fine tremors and occasional jerking persisted, and terminally the respirations were quite labored. The child died on the morning of September 23, approximately 32 hours after birth.

An autopsy was performed seven hours after death. The body measured 50.5 cm. from crown to heel, and weighed 3,180 Gm. Significant findings on gross examination were limited to the lungs, spleen and liver. The right lung was slightly increased in weight, at 39 Gm. The pleural surface was dark red, smooth, firm, and noncrepitant. The cut surface was dark red and congested. Moderate inflammation of the bronchial mucosa was observed, with considerable amounts of dark brown, tenacious mucoid material in the lumina. The left lung weighed 32 Gm. The pleural surface was light pink and smooth, with a fleshy consistency and some crepitation. The cut surface showed moderate congestion and small amounts of brown mucoid material in the bronchi. The vessels of both lungs were normal. The spleen and liver were moderately congested and slightly increased in weight, but showed no other gross abnormality.

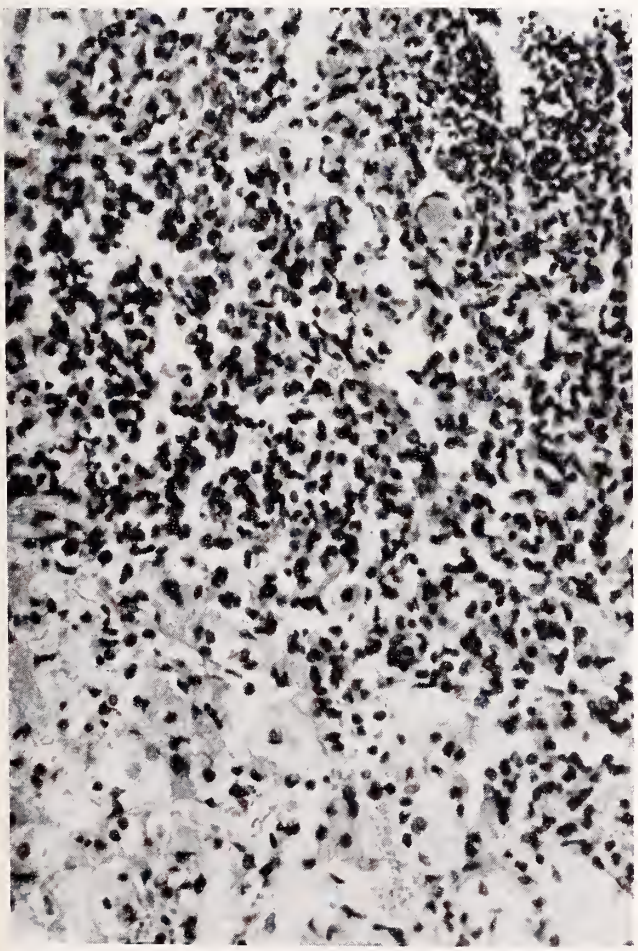

Figure 2. Cellular reaction within the lesion shown in Figure 1. ×600.

Significant findings on microscopic examination were present in the lungs, heart, liver, adrenals and lymph nodes. The lungs showed extensive areas of collapse and pneumonitis. Alveoli and bronchioles contained inflammatory and hemorrhagic exudate. Inflammatory cells consisted of polymorphonuclear leukocytes and monocytes. Clumps of gram positive cocci and gram positive rods were observed in the bronchioles. One focal area of necrosis was identified in the lung tissue near the pleural surface. A few gram positive rods were discerned within that area. The most striking findings were seen in the adrenals and lymph nodes. Areas of necrosis were scattered throughout the cortices and medullae of the adrenal glands (Figure 1). Histiocytes, polymorphonuclear leukocytes and cellular debris occurred in those foci (Figure 2). Similar well developed necrotic foci were seen in the lymph nodes, usually in a subcapsular position. A single but well developed focus was identified in the myocardium. The liver contained an occasional small area of early necrosis, and also showed rather extensive extramedullary hematopoiesis. Gram positive rods were identified in all areas of necrosis except those in the liver. They were frequently numerous in the centers, and often appeared slightly beaded, curved or club-shaped (Figure 3). An occasional gram negative rod was seen in those areas too.

BACTERIOLOGY

The specimens submitted to the Bacteriology Diagnostic Laboratory were blood, spinal fluid, and nose and throat cultures *ante mortem,* and blood, lung tissue and splenic tissue *post mortem.* The nose and throat swabs showed Escherichia coli, along with normal flora. Escherichia coli grew out of splenic tissue, and Escherichia coli, hemolytic Staphylococcus aureus and Pseudomonas

TABLE 1

BIOCHEMICAL PROPERTIES OF LISTERIA MONOCYTOGENES

glucose	acid	inositol	−
maltose	acid	galactose	−
xylose	acid	glycerol	−
rhamnose	acid	inulin	−
salicin	acid	methyl red	+
dextrin	acid	Voges-Proskauer	+
arabinose	−	citrate	−
lactose	−	H_2S	−
sucrose	−	urea	−
mannitol	−	motility	+

aeruginosa grew from the lung tissue. No growth was obtained from the postmortem blood, but a gram positive rod that appeared to be a diphtheroid was isolated from the blood and cerebrospinal fluid that had been obtained on the day of death. The organism was subsequently identified as Listeria monocytogenes type 4b. Figure 4 shows the appearance of these gram positive rods in palisade arrangements. On 5 per cent sheep blood agar, incubated at 37° C. for 24 hours, tiny pinpoint colonies were observed, and after 48 hours they had enlarged to approximately 1 mm. in diameter and were surrounded by small zones of beta hemolysis. Figure 5 demonstrates the colonial morphology. The small zones of beta hemolysis can be observed in Figure 6. The biochemical properties of this organism, grown at 37° C., are shown in Table 1. The organism was motile at both 37° and at 25° C.

Inoculation of a heavy suspension of the isolated strain of Listeria monocytogenes intraperitoneally caused white mice to die within 48 hours. The spleens and livers of the mice contained numerous minute necrotic foci. One of the features of the disease in mice is an acute conjunctivitis. Inoculation of the eye of a rabbit by swabbing produced a purulent conjunctivitis that progressed to corneal opacification. The reactions observed in the rabbit's eye are shown in Figure 7.

As a result of these tests, the organism was identified as Listeria monocytogenes, and the identification was confirmed by Mr. Edward Byers, bacteriologist at the State Hygienic Laboratory in Iowa City, and by the U.S.P.H.S. Communicable Disease Center in Chamblee, Georgia.

Antibiotic sensitivity tests utilizing commercially available discs revealed that growth of this strain of Listeria monocytogenes was inhibited by low concentrations of novobiocin, erythromycin, tetra-

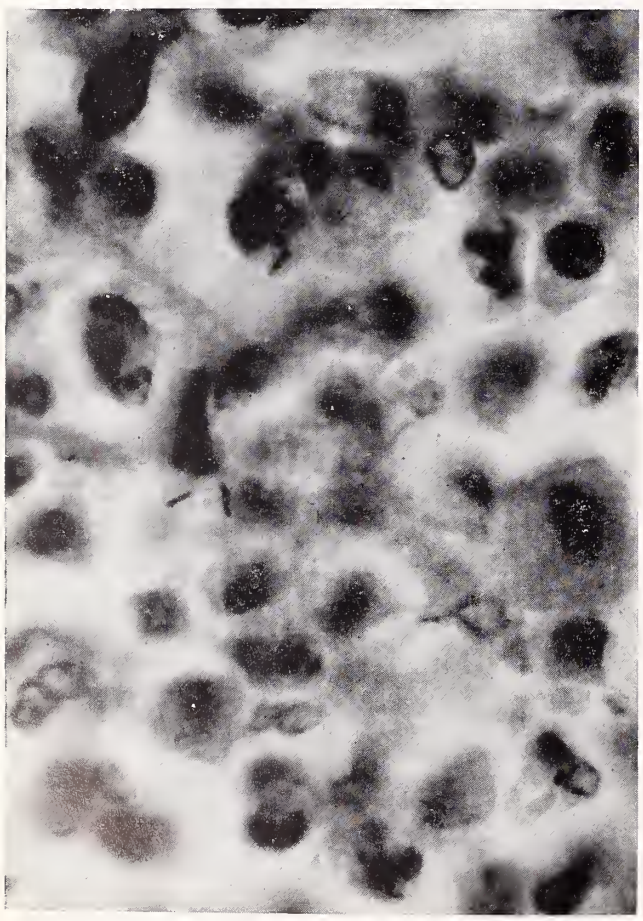

Figure 3. Gram positive rods in phagocytes noted within a focal lesion in the adrenal gland. Gram stain. ×1200.

Figure 4. Gram stain of L. monocytogenes showing palisade arrangements.

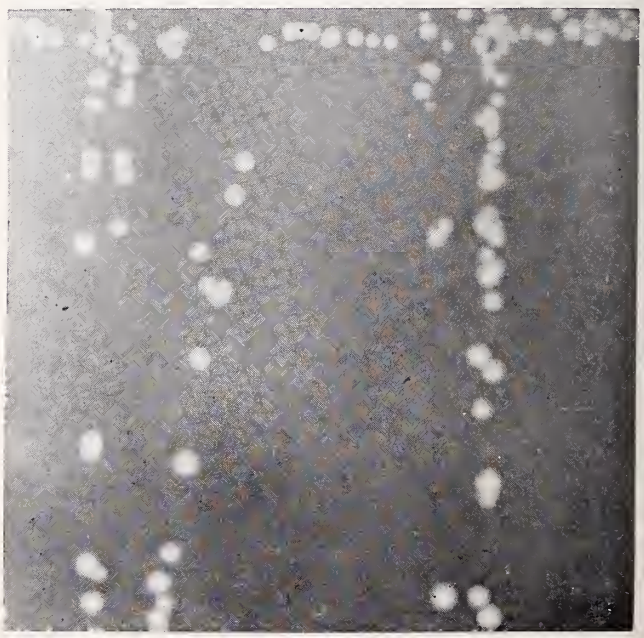

Figure 5. Colonies of L. monocytogenes on surface of blood agar plate.

cycline, chloramphenicol, penicillin, streptomycin, bacitracin, neomycin, vancomycin, sulfadiazine, sulfamethoxypyridazine (Kynex), sulfadimethoxine, sulfasoxazole (Gantrisin) and sulfaethylthiadiazole, and by a combination of sulfadiazine, sulfamethazine and sulfamerazine (Triple Sulfa).

Uterine and cervical swabs from the infant's mother were obtained after her discharge from the hospital. Listeria monocytogenes could not be isolated from those specimens. Only one serum specimen was obtained from the mother. Using a live suspension of the organism isolated from the infant, an agglutination titer of 1:160 was obtained. The significance of that titer remains unknown, since a subsequent serum could not be obtained.

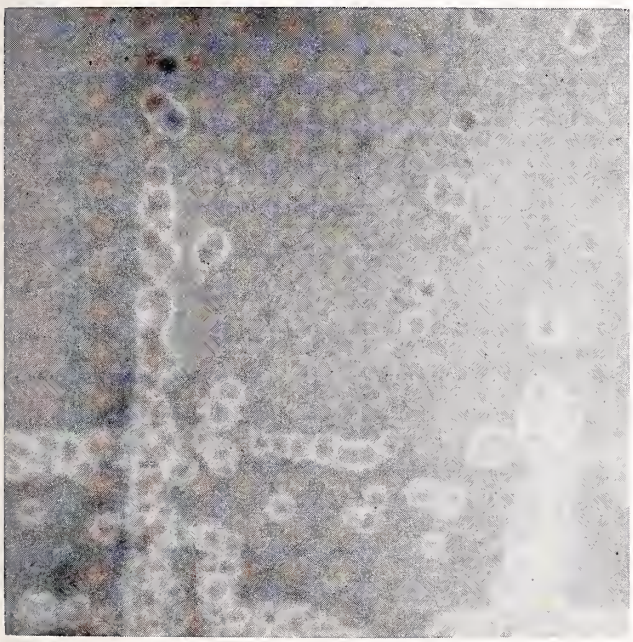

Figure 6. Colonies of L. monocytogenes showing narrow zones of beta hemolysis.

DISCUSSION

Several clinical forms of Listeria infection in humans are well recognized and reported. Meningitis in the newborn and in older, often debilitated adults has been seen most commonly in the United States. Granulomatous sepsis, also referred to as granulomatosis infantiseptica, or miliary granulomatosis, has constituted an important segment of the cases reported in the European literature, but less so in the United States. The less frequent forms include a septic-typhoidal form, an oculo-glandular form, a septic type with mononucleosis, and rarely a subacute bacterial endocarditis. Several cutaneous cases have been reported. Extensive reviews of the subject in the English literature are those by Murray,[11] Hoeprich[6] and Seeliger.[16] Our case is one of granulomatous sepsis of the newborn.

The means by which the fetus becomes infected is uncertain, but the process may occur *in utero* or during delivery from organisms harbored in the mother's vagina. Infection, *in utero* by a transplacental route, is probably the usual occurrence. Microscopic and cultural examinations of placental and cord tissues in such cases have revealed large numbers of the organisms.[12] In other instances, primarily spread to the fetus by aspiration of infected amniotic fluid may occur. This is suggested when the lesions in the fetus are confined primarily to the respiratory and gastrointestinal tracts. But the mode by which the infection passes the intact membranes is not clearly established. When infection in the fetus first becomes manifest a week or two after delivery, the organism is more likely to have been acquired during passage through the vagina.

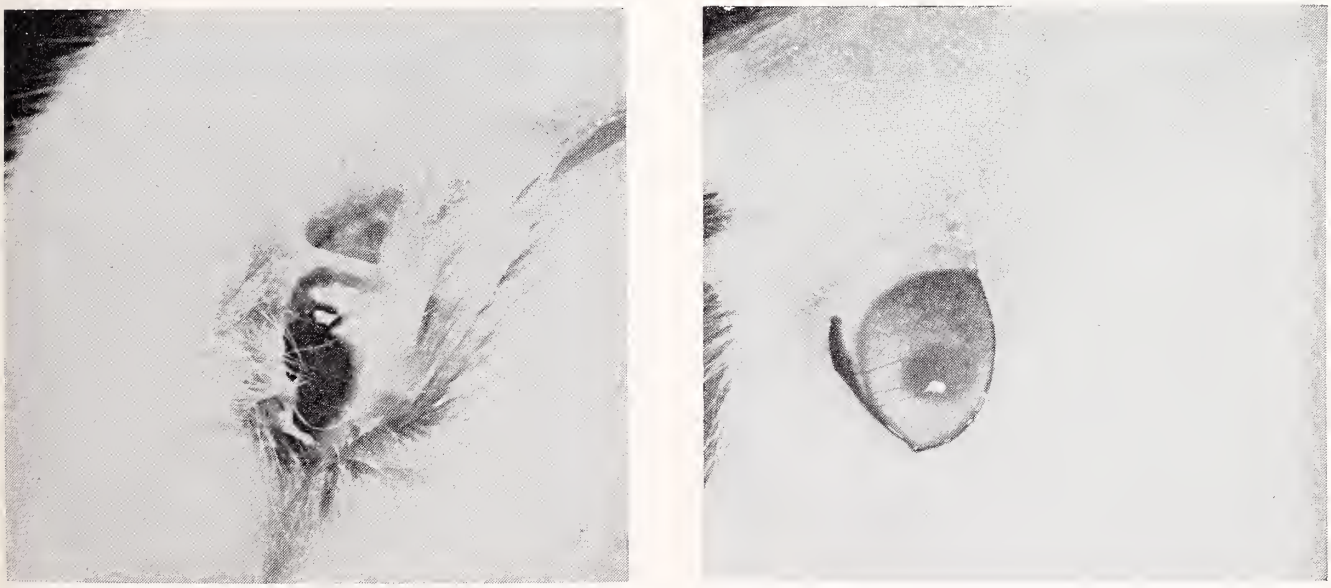

Figure 7. Figure on the left shows purulent conjunctivitis two days after ocular instillation of L. monocytogenes. The figure on the right shows corneal opacification 12 days after ocular instillation of L. monocytogenes.

Listeriosis in the perinatal period and during pregnancy is perhaps most characteristically seen with little or no manifestation in the mother, but with severe or fatal disease in the infant. The mother may have a few mild and non-specific symptoms and signs, such as those of a cold or diarrhea. Significant fever may be present. Rarely, more severe disease, such as pyelitis of pregnancy and meningitis, has been reported.

Manifestations in the fetus probably depend considerably on how long the infection has been present prior to delivery, and on its severity. Premature delivery and stillbirth may occur. If living, the infant may be gravely ill at birth, and may live for only a short time. But signs are frequently delayed for from 24 to 48 hours, after which there is a rapid deterioration. Then granulomatous sepsis will usually be present, with or without meningitis. As we have said, if infection occurs during delivery, signs may not develop for a week or more. In such cases septicemia occurs, but the central nervous system is likely to be predominantly affected with a meningitis. Signs that develop in the newborn are not characteristic of any specific infection. Respiratory signs of increasing severity are most usually reported, with cyanosis and apnea, refusal of feedings, diarrhea, fever, muscular twitchings and convulsions. Occasionally, an erythematous rash may be seen. Pink areas on the skin were noted clinically in the case that we have just reported, but they were not observed *post mortem*.

The lesions of listeriosis in the newborn are fairly characteristic. Scattered foci of necrosis are found in a few or many organs. Macroscopically, these are seen as pinhead-sized, grayish foci in the tissue, although in early lesions no macroscopic findings may be evident. If central nervous system infection has developed, a purulent type of meningitis will usually be seen. A bronchopneumonia with foci of necrosis in the lungs is frequently present. Microscopically, there is initially a necrotic focus about which a predominantly granulomatous reaction develops, with a variable number of polymorphonuclear leukocytes. Gram stains will usually reveal gram positive rods in the center and in phagocytic cells. The tissues commonly involved include the adrenals, liver, spleen, lungs, pharynx, gastrointestinal tract, central nervous system and skin. The heart, kidneys and other tissues may also show lesions and organisms. If there is an opportunity to examine the placenta and umbilical cord, extensive inflammatory cell infiltration and numerous gram positive rods may be seen. Histiocytes, lymphocytes and plasma cells are usually most numerous beneath the chorionic membrane and in the intervillous spaces. In addition to the diffuse inflammation, focal lesions may also be seen. In the umbilical cord, the cellular infiltrates are seen around the vessels.

Because the infections that Listeria monocytogenes can produce are myriad, a bacteriologic identification is essential in the diagnosis of listeriosis. However, there are several problems that face the bacteriologist. The first of them is the differentiation of Listeria monocytogenes from the Corynebacterium species or diphtheroids which appear in many clinical specimens either as contaminants or as "normal flora." Differentiation between Listeria monocytogenes and Erysipelothrix rhusiopathiae must also be accomplished. The biochemical activities of Listeria may be of some value, but they are not consistent enough to be relied upon. In general, L. monocytogenes ferments glucose, maltose, rhamnose, salicin and dextrin, producing acid without gas. The production of beta hemolysis may be of some value, but it must be remembered that occasional strains of Erysipelothrix rhusiopathiae and some strains of Corynebacteria are also hemolytic. In addition, the zone of hemolysis may be small and may not appear for two or three days. Listeria monocytogenes is motile at both 37° and 25° C., but because it is sluggish at the former of those temperatures, motility studies should be performed at both of them. Erysipelothrix rhusiopathiae is non-motile, and of the Corynebacterium species, only the following plant pathogens are motile: C. poinsettiae, C. hypertrophicans, C. trituci and C. flaccumfaciens.[2]

Listeria monocytogenes can best be identified by its animal pathogenicity. Porter and Hale[13] have shown that mice inoculated with Listeria monocytogenes die in periods ranging from 48 to 72 hours, whereas those infected with Erysipelothrix rhusiopathiae die later. The outstanding feature in these animals is a marked focal necrosis of the liver. Morris and Julianelle[10] demonstrated the production of a kerato-conjunctivitis followed by corneal opacification in a rabbit's eye swabbed with cultures of Listeria monocytogenes. Some strains of Erysipelothrix rhusiopathiae produce this reaction, one that eventually is fatal to the animals.[8]

Thus, on the basis of fermentation reactions, hemolysis, motility and animal pathogenicity, the average bacteriologic laboratory can identify Listeria monocytogenes. However, the isolation of the organism from tissue and exudate may be difficult. Gray *et al.*[5] have shown that bovine brain tissue negative for growth of Listeria on primary culture yielded numerous organisms when homogenized brain tissue was incubated at refrigeration temperature and subcultured at intervals over a period of five weeks to three months. This luxuriant growth on subculture may be explained on the basis that L. monocytogenes will grow at refrigeration temperature, whereas most bacteria will not. This characteristic enables the Listeria to attain the numbers that are necessary for subculture. Additionally, it has been suggested that tissue contains substances inhibitory to the growth of Listeria, and that the breakdown of the material permits growth. Other organisms may have some

inhibitory effect. Several selective media have been devised to overcome that problem.[16] Recognition of colonies of L. monocytogenes can be facilitated through the use of oblique illumination.[1]

Our failure to isolate the organism from postmortem tissues in the case reported here was perhaps due to this inhibitory effect of the other bacteria that were present, or to our failure to handle the specimens in the manner described by Gray *et al.*[5]

Serologic procedures are of little value in identifying L. monocytogenes at the average bacteriologic laboratory. The presence of more than one immunologic type of organism necessitates the use of several specific antisera. These antisera are not available commercially, and thus must be prepared by the laboratory. Persons infected with L. monocytogenes demonstrate the formation of agglutinins and complement-fixing antibodies. Because of the frequent appearance of Listeria agglutinins and complement-fixing antibodies in the serums of healthy individuals, it is necessary that either an increase or a decrease in titer be demonstrated. Additionally, cross-reactivity of Listeria antiserum with enterococcal and staphylococcal antigens requires absorption of the serum to remove these cross-reacting antigens.[16] Although the titer of antibody to L. monocytogenes has been shown to increase after infection, no correlation has been shown between antibody level and immunity.[16]

The type of specimen submitted for bacteriologic examination in neonatal listeriosis is important. Early in the disease, bacteria are present in the blood stream, and the ideal specimen can be obtained at that time. Later in the disease process, the intracellular nature of the organism and its affinity for the reticuloendothelial system make a bacteriologic diagnosis more difficult. However, the organism can be isolated from bone marrow. Umbilical blood, spinal fluid and placenta should be examined bacteriologically. The finding of gram positive rods in meconium, which normally either is sterile or contains very few organisms, may suggest the possibility of neonatal listeriosis and is essential for the early diagnosis of the disease.[16]

Where do infections with L. monocytogenes originate? The organism has been found to cause disease in 27 species of animals, among them being sheep, cattle, swine and chickens.[14] In cattle, sheep and goats, an infection results in a disease of the central nervous system and produces abortions. Abortions likewise are produced in swine, but in chickens the result is a septicemia and myocardial degeneration with necrosis. The presence of large numbers of these animals in Iowa makes this disease a greater threat here than in many other places, since it is transmissible from animal to man. Physicians and bacteriologists in Iowa must become aware of this problem.

The danger that pregnant women may come into contact with diseased animals and the danger of drinking unpasteurized milk need to be emphasized. Emphasis also must be given to the danger of transmission of listeriosis to physicians and attendants of a case of neonatal listeriosis.[16]

As can be seen from the foregoing discussion, the clinical features of listeriosis of the newborn are not so well defined that a case can be diagnosed on that basis. In fact, the disease is rarely suspected on the basis of clinical evidence. Specific diagnosis rests with the alertness of the bacteriologist and pathologist, and depends upon their obtaining suitable specimens. The initial isolation of the organism in a given institution or area is frequently followed by the recognition of additional cases. At postmortem examination, the macroscopic findings may not give a clue as to the cause of death. Although the histologic changes are sufficiently characteristic to suggest the disease, particularly if the organisms can be seen, their significance may be overlooked, as occurred in the initial examination of the microscopic sections in our case. In addition to routine cultures that may be obtained at postmortem, cultures should be made of the liver, brain, lymph nodes, lungs, adrenals or other tissues that are predominantly affected by this disease.

The true incidence of listeriosis of the newborn, like the incidences of the other forms of the disease, cannot easily be determined, but writers on the subject almost universally agree that the rate is higher than is generally realized. One series reported from Germany showed that approximately 3 per cent of perinatal deaths in 3,246 deliveries had been due to proved Listeria infection.[3] Systematic studies in this country suggest a similar or lower mortality. Welshimer and Winglewish[17] examined the meconiums of over 170 aborted fetuses and infants who had died shortly after birth, and failed to recover L. monocytogenes in any instance. Hood[7] examined 66 cases of threatened or actual abortion, or of postpartal sepsis, and recovered the organism in pure culture from the reproductive tract of the mother and from her aborted fetus in only one instance.

Listeriosis probably has a higher mortality among newborn patients than among patients in other age groups. The death rate is above 95 per cent in the infant cases that have been reported from outside the United States.[16] In the largest series of cases reported from the United States, the mortality was 83 per cent in infants ill from birth, but those who had become ill between one week and one month after birth had a mortality of 33 per cent.[7] Probably the poor prognosis for those ill at birth is due to the presence of already well advanced and disseminated infection. In the infants who became ill after a week or so, the disease may have been recognized at an early stage when it was amenable to adequate therapy. The predominant clinical manifestations in such cases suggested meningitis, and the organism could

almost always be cultivated from the spinal fluid. Although some of the patients undoubtedly would survive without treatment, the mortality in untreated cases is estimated at between 70 and 80 per cent.[4]

Early and adequate chemotherapeutic and antibiotic treatment is capable of reducing the mortality in listeriosis. The greatest success, according to the reports, has come from the use of multiple agents. Sulfonamides, penicillin, streptomycin, chloramphenicol, the tetracyclines and erythromycin have been utilized in combinations of two or three. Consequently, it has been difficult to evaluate the effects of any single drug in individual cases. Seeliger[16] recommends the tetracyclines as the drugs of choice. Erythromycin is also effective. Hoeprich[16] recommends penicillin as the agent of choice because of the bactericidal levels that are clinically attainable, and suggests using erythromycin in combination with it. However, the recommendations in regard to penicillin are conflicting. Seeliger says it is of little value when used alone, although moderately efficient in combination with streptomycin or the sulfonamides. Hood[7] does not recommend penicillin, and reports finding eight of 10 strains of the organism isolated from patients to be resistant to it *in vitro*. Streptomycin alone is not recommended because of the rapid development of resistance. Chloramphenicol has been recommended because of its easy passage through the blood-spinal fluid barrier. It thus appears that a combination of drugs in full dosage for 10 days or more offers the best treatment.

Although the occurrence of listeriosis of the newborn may be relatively rare, the serious prognosis warrants an awareness and a careful study of the problem. Effective measures for its prevention must await further clarification of the epidemiology. A more immediate approach to its control is aptly indicated in Hood's report of several cases.[7] Listeric septicemia was recognized on the basis of blood culture in women suffering from fever and malaise during the last trimester of pregnancy. All responded to therapy and delivered healthy infants, although one of them was premature. In the cervix of the woman who delivered her baby prematurely, Listeria was the predominant organism. The infant was observed carefully for signs of infection, and on the eighth day developed signs of meningitis. L. monocytogenes was isolated from the spinal fluid and blood. Intensive antibiotic therapy was instituted, and the mother and child eventually were discharged as well. It appears that relatively slight and harmless infections should not be disregarded during pregnancy. Treatment of the infant at the earliest signs of infection is recommended, and the therapy should subsequently be adjusted as cultures and sensitivity tests indicate.

SUMMARY

The clinical, pathologic and bacteriologic aspects of a case of neonatal listeriosis have been presented. The difficulty of diagnosing the disease clinically has been emphasized, together with the importance of making a bacteriologic diagnosis.

It is essential that both the physician and the bacteriologist be familiar with the disease produced by the organism, and with the methods to be employed in identifying it.

ACKNOWLEDGMENT

We should like to thank Dr. John D. Good, who performed the autopsy, and the Department of Pediatrics, which permitted us to report this case.

REFERENCES

1. Bearns, R. E., and Girard, K. F.: On isolation of *Listeria monocytogenes* from biological specimens. Am. J. Med. Tech. **25**:2:120-126, (Mar.-Apr.) 1959.
2. Breed, R. S., Murray, E. G. D., and Smith, N. R.: Bergey's Manual of Determinative Bacteriology, Seventh Edition. Baltimore, The Williams and Wilkins Co. 1957.
3. Breuning, M., and Fritzsche, F.: Uber die Haufigkeit der Listeriose bei Neugeborenen. Geburtsh. u. Frauenh. **14**:1113-1124, (Dec.) 1954.
4. Delta, B. G., Scott, R. B., and Booker, C. R.: Listeria meningitis in newborn. Med. Ann. District of Columbia **30**:-329-334, (June) 1961.
5. Gray, M. L., Stafseth, H. J., Thorp, F., Jr., Sholl, L. B., and Riley, W. F., Jr.: New technique for isolating listerellae from bovine brain. J. Bact. **55**:471-476, (Apr.) 1948.
6. Hoeprich, P. D.: Infection due to *Listeria monocytogenes*. Medicine **37**:143-160, (May) 1958.
7. Hood, M.: Listeriosis as infection of pregnancy manifested in newborn. Pediatrics **27**:390-396, (Mar.) 1961.
8. Julianelle, L. A.: Identification of erysipelothrix and its relation to listerella. J. Bact. **42**:385-394, (Sept.) 1941.
9. King, E. O., and Seeliger, H. P. R.: Serological types of *Listeria monocytogenes* occurring in United States. J. Bact. **77**:122-123, (Jan.) 1959.
10. Morris, M. C., and Julianelle, L. A.: Study of ocular infection induced experimentally with Bacterium monocytogenes. Amer. J. Ophth. **18**:535-541, (June) 1935.
11. Murray, E. G. D.: Characterization of listeriosis in man and other animals. Canad. M. A. J. **72**:99-103, (Jan. 15) 1955.
12. Olding, L., and Philipson, L.: Two cases of listeriosis in newborn, associated with placental infection. Acta path. et microbiol. scandinav. **48**:24-30, (Fasc. 1) 1960.
13. Porter, J. R., and Hale, W. M.: Effect of sulfanilamide and sulfapyridine on experimental infections with *Listerella* and *Erysipelothrix* in mice. Proc. Soc. Exper. Biol. & Med. **42**:47-50, (Oct.) 1939.
14. Reed, R. W.: "Listeria and Erysipelothrix." In: Dubos, R. J.: Bacterial and Mycotic Infections of Man. 3rd Ed., Philadelphia, J. B. Lippincott, 1958, pp. 453-469.
15. Seeliger, H.: Listeriose [Beiträge zur Hygiene und Epidemiologie, Heft. 8] Leipzig, East Germany, Johann Ambrosius Barth, Verlag, 1955.
16. Seeliger, H. P. R.: Listeriosis. New York, Hafner Publishing Co., 1961.
17. Welshimer, H. J., and Winglewish, N. G.: Listeriosis—summary of seven cases of listeria meningitis. J.A.M.A. **171**:1319-1323, (Nov. 7) 1959.

IMS Nominating Committee Meeting

The Iowa Medical Society's Nominating Committee is to meet at the headquarters office in Des Moines on Wednesday, April 18, at 1:30 p.m. All members of the Society will be given the names of the physicians who compose the Nominating Committee sometime within the first 10 days of April, by direct mail.

Extracorporeal Dialysis In Renal Failure

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LUKE C. FABER, M.D., and
EDWARD E. MASON, M.D.
Iowa City

This is to be a review of the experience at the State University of Iowa Hospitals in the treatment of patients by means of the artificial kidney. It has been our objective to find out how this adjunct has been used, and to determine to what extent its use has been either effective and worthwhile or ineffective and therefore wasteful of valuable time and facilities. Physicians practicing in Iowa should find such a review helpful in deciding which patients to refer to centers where artificial kidneys are available. In addition, a number of specific patients will be described, who seem to illustrate certain points relative to diagnosis, prognosis and the development of an overall treatment plan.

There are patients who need early treatment in a renal center. There are other patients in whom some other problem may be immediately important, even though transfer to a renal center will ultimately be required. Some patients may be cared for locally for a time, until renal failure is definitely found to be present. The temptation, then, may be to procrastinate regarding transfer until urgent or emergency indications appear. There are some patients who probably will not be helped in more than a very temporary way by the artificial kidney. The problem of diagnosis and prognosis then becomes paramount, and often the artificial kidney is required solely to provide additional time for an attempt at a solution of those problems by renal biopsy.

GENERAL OBSERVATIONS ON THE EXPERIENCE AT SUI

Ours is a rather modest series, and the extensive reports from other institutions will therefore be used to supplement our own experience in arriving at any recommendations. The artificial kidney was first established as a service at SUI just two and one-half years ago. It has been maintained by the Department of Surgery under the direction of one of the members of the surgery staff. Surgery residents are assigned to "extracorporeal dialyses" as a part of their other rotations and usually in addition to other assignments, since running the artificial kidney has infrequently become a full-time activity. The use of the artificial kidney is scheduled as an elective procedure during regular operating-room hours as often as is compatible with good patient care. There are many instances, however, when extracorporeal dialysis must be an emergency procedure, but this has become less common as the medical profession has become acquainted with the indications for dialysis. The procedure is now contemplated early, and is planned for as part of the overall care of patients with acute renal failure.

Ninety dialyses have been administered to 39 patients. The experience is further categorized in Table 1. It would appear from this table that the greatest effort has been made in those patients who derived the least benefit. In our effort to extend possible benefits to patients who are borderline candidates for such treatment, there is often a question as to whether a patient should be denied any treatment with the artificial kidney, on the one hand, or whether perhaps earlier, more frequent use of the artificial kidney might be more effective in the final outcome, on the other hand. In other institutions and early in the

TABLE 1
USE OF EXTRACORPOREAL DIALYSIS AT SUI HOSPITALS

	No. of Patients	Long Term Survival	No. of Dialyses	Average No. of Dialyses Per Patient
Nephritis	9	0 patients (0%)	28	3
Renal Failure and associated disease	9	1 patient (11%)	17	2
Intravascular hemolysis TUR	4	1 patient (25%)	11	3
Trauma	6	2 patients (33%)	19	3
Poisoning and toxic reactions	9	8 patients (86%)	10	1
Postpartum hemorrhage and transfusion reaction	2	2 patients (100%)	2	1

From the Department of Surgery at the SUI College of Medicine.

history of the artificial kidney, the poor results were attributed to poor selection of patients and to delays in using it in those patients who should have responded to it.

At the present time, excellent results are usually obtained in patients with acute renal failure due to postpartum hemorrhage, transfusion reactions, intravascular hemolysis and poisoning. The immediate results may be excellent in patients with chronic glomerular nephritis, but in our experience when the disease has reached this stage, repeated dialyses are required to maintain the improvement, and the chief justification seems to be in instances where the diagnosis has not been established and where there is still some hope that the renal failure actually is due to a reversible process. There may be instances of acute glomerular nephritis of such severity as to cause a potentially lethal uremia but without permanent, irreversible damage. This is only a hope at present. We have not seen such a patient, but the artificial kidney should be used in any patients in whom the pathologist believes there is such a possibility, on the basis of his examination of a kidney biopsy.

THE ARTIFICIAL KIDNEY IN CASES OF POISONING

Acute renal failure needs to be defined in a very pragmatic way for those of us who either must refer patients to renal centers or must treat patients in those centers. Acute renal failure is a temporarily inadequate renal function with a danger of serious morbidity or death, and it may

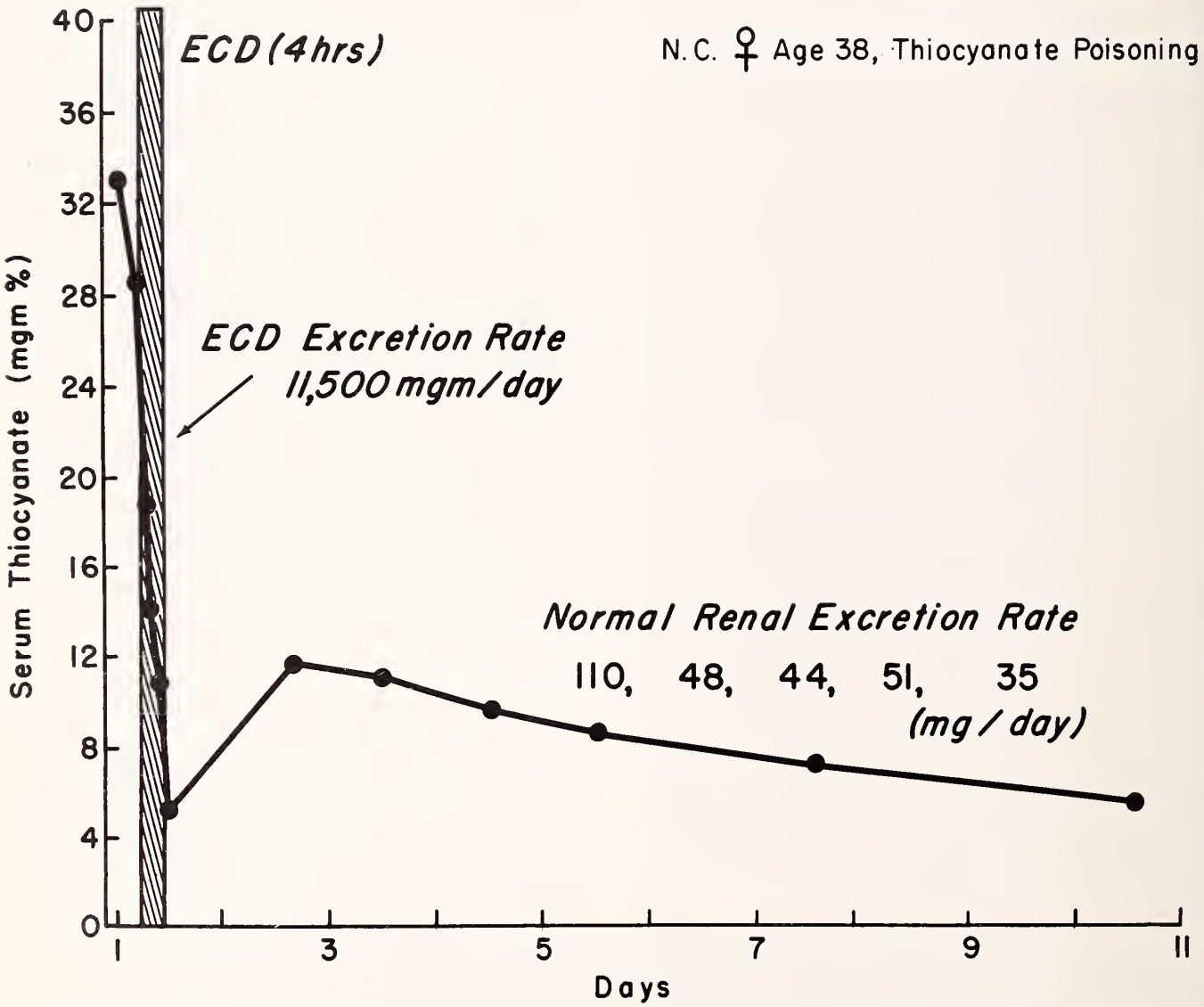

Figure 1 demonstrates some of the observations made during treatment of a 68-year-old woman with hypertension, who had been treated with thiocyanates for six weeks. A plot of serum thiocyanate is shown on the ordinate in mg. per cent. The days of observation are plotted on the abscissa. The rapid fall in serum thiocyanate on the first day was due to removal of thiocyanate by extracorporeal dialysis (ECD), which was carried on for a period of four hours. We are indebted to Dr. Robert Dryer, biochemist, for frequent analyses of thiocyanate in blood, urine and dialysate. The slope of the serum thiocyanate curve and the figures for excretion show that the artificial kidney was at least 100 times as efficient in removing thiocyanate as were the patient's own kidneys. There was no evidence of any abnormality in kidney function. Thiocyanate is poorly excreted. It tends to be reabsorbed, much as chloride is reabsorbed from the glomerular filtrate.

be a relative state which, in certain circumstances, may exist without significant demonstrable renal damage. There are certain poisonous substances that are normally excreted by the kidney but so slowly that the artificial kidney must be called upon to do the job.

Figure 1 shows the relative efficiency of extracorporeal dialysis, with the twin-coil kidney, in the removal of thiocyanate, as compared with the normal kidneys of a 68-year-old woman with essential hypertension. She had been treated with thiocyanates for six weeks until she became disoriented, psychotic and in need of hospitalization. The serum thiocyanate level of 32 mg. per cent was in a range that has been reported as lethal. A rapid reduction of body thiocyanate was carried out with the artificial kidney during a five-hour period. In the normal kidney, thiocyanate is filtered through the glomerulus and then to a great extent is reabsorbed from the tubular lumen. When blood containing this highly mobile, small-sized molecule is passed through a cellophane membrane, with a dialysate on the other side of the membrane that contains no thiocyanate, the removal occurs rapidly. Immediately after the dialysis, the patient's serum thiocyanate was 5 mg. per cent. The level rose as thiocyanate moved into the blood from other portions of the total body pool. This early rebound is observed also for urea, creatinine and other substances that are removed by the artificial kidney. If there is delay in obtaining blood samples after dialysis, it may therefore appear that the substance in question is being poorly removed. In this instance, further treatments were not required. Sometimes the rapid rebound of waste substances in the blood after dialysis requires repeated dialyses at relatively short intervals until the material has been eliminated not only from the blood and extracellular fluid but from less accessible areas as well.

REMOVAL OF PRODUCTS OF CELL BREAKDOWN

There are circumstances when there is a temporary obstruction of the kidney or an inter-

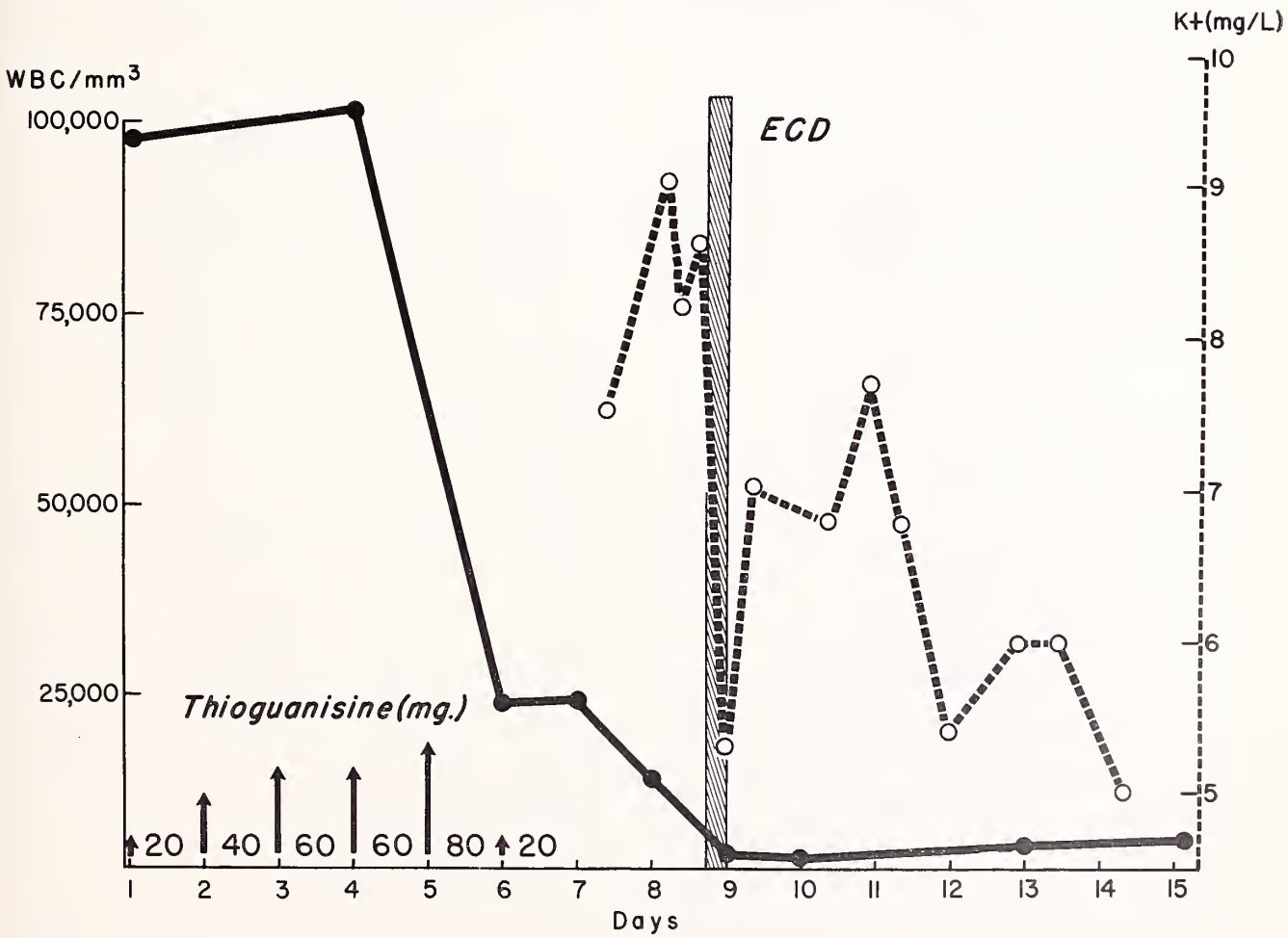

Figure 2 shows what happened to a 12-year-old boy with acute lymphatic leukemia. The white blood cell count (solid line) can be measured by the scale on the left ordinate, and the serum potassium concentration (dotted line) can be measured by the scale on the right ordinate. The fall in white blood cell count was coincident with the administration of thioguanisine in doses of 20 to 80 mg. per day, as indicated by the arrows. The extremely high serum potassium levels on the eighth day led to the intravenous administration of glucose, insulin and calcium, and to the use of ion exchange resins by rectal infusion while the artificial kidney was being prepared. The serum potassium was rapidly lowered by extracorporeal dialysis during the period shown by the vertical bar. The electrocardiogram showed the expected return to normal with correction of body chemistries. There was a rise again during subsequent days, but a rapid return of urine flow obviated the necessity for further dialysis.

ference with its function by products of cell breakdown, and with an accompanying rise in serum potassium from that same cell breakdown. Emergency dialysis may then be used primarily to remove potassium. There were two children in the present series in whom, as a result of the treatment of leukemia with thioguanisine, there was a very rapid lysis of white blood cells. Severe oliguria developed, probably as a result of tubular blockade with uric acid. Shortly after dialysis, the kidneys resumed function, and both children were discharged from the hospital in at least a temporary state of remission and comfort. Figure 2 shows the white blood cell count and the serum potassium level during the critical period for one of those patients, a boy aged 12 with acute lymphatic leukemia. The serum potassium level was above 9 mEq./L. immediately prior to dialysis.

Other measures were used in an attempt to prevent death from potassium poisoning while preparations were being made for extracorporeal dialysis. Glucose, insulin and calcium were given intravenously and exchange resins were given by enema, with only a temporary effect on the serum potassium. The electrocardiogram was almost unrecognizable, and there was a momentary cessation of heart activity just prior to the dialysis. A slap on the chest was followed by resumption of heart activity. Within 10 minutes after dialysis was initiated, the electrocardiogram was restored to a recognizable complex, although it still was not normal. Potassium, like thiocyanate, is a very mobile molecule, and has a high dialysance—i.e., rate of removal by the artificial kidney.

EXTRACORPOREAL DIALYSIS IN CASES OF CRUSHING INJURIES

The above patients serve to illustrate what the artificial kidney can accomplish, but the underlying problems in those cases were rather unusual. Also, actual kidney cell damage probably was not present in those patients.

There are several conditions in which a release of muscle or red blood cell pigments leads to acute renal failure. Although these are conveniently classified as pigment nephropathies, the precise role played by the pigments, hemoglobin or myoglobin, is not definitely understood. The best evidence indicates that circulating pigments produce profound renal vasoconstriction and initiate an ischemuric episode. Added factors of dehydration, hypovolemia, reflex vasospasm, sludging and release of endogenous norepinephrine potentiate the ischemia and result in cortical or tubular necrosis.

Once this sequence of events begins, it is problematical whether it can be interrupted or reversed. The renal ischemia is often so rapid or unexpected that appropriate treatment is not used when it might be of benefit. It is of great advantage, therefore, to be aware of the possible sequelae in advance. Figure 3 presents the data on a 22-year-old man who had been pinned under an 800-pound snow scoop for two and one-half hours, without apparent severe injury. Fortunately, one of the consulting physicians was familiar with the natural history of crush injuries and made arrangements by telephone for rapid transfer of the patient, in case oliguria should develop. Within 12 hours, the patient was undergoing dialysis for hyperpotassemia. In 12 hours the urinary output was 15 ml., and the potassium had risen from 5.6 to 8.1 mEq./-L. A few hours' delay would probably have been fatal, since cardiac arrhythmia was noted just before the dialysis started. Four other dialyses were carried out, primarily for the removal of potassium, and two for the removal of nitrogenous waste products. Diuresis ensued 14 days after the injury, and the patient made an uneventful recovery.

EXTRACORPOREAL DIALYSIS SHOULDN'T ALWAYS BE DONE FIRST

The diagnosis in the case just described was made in time, as a consequence of the physician's awareness of the hazards that crushing injuries pose. Most diagnoses of renal failure are made only when oliguria, azotemia or uremia has appeared, but it has been written that these criteria are insufficient, since renal failure can occur without a diminution of urinary volume. The composition of the urine is also an important guide to the diagnosis of acute renal failure. It tends to resemble plasma in that normal tubular sodium reabsorption does not occur. Urinary sodium may rise to 90 mEq./L. Urea is not actively excreted, and thus its concentration is low. Specific gravity remains low even with low volumes, since the solutes are not concentrated. The presence or absence of casts is not diagnostic, but the finding of pigmented or granular casts without other explanation is suggestive.

Once the diagnosis has been made, only one thing precludes the institution of a fairly standard plan of management, and that is the patient's immediate condition. Attention to the patient's underlying illness may indicate certain emergent or urgent measures to be performed before he is referred to a kidney center. Figure 4 lists the data from a 19-year-old college student who had attempted suicide by ingesting 40 Gm. of potassium chlorate in divided doses. He was admitted to an emergency clinic with marked cyanosis and irregular respiration, though not in shock. Oliguria was present. It was learned that, as a powerful oxidizing agent, potassium chlorate could produce severe methemoglobinemia, accounting for the cyanosis. Two exchange transfusions of five liters each were carried out on successive days, and his condition improved. By that time, the serum potassium and urea had become moderately elevated, and so the patient was then transported to our kidney center. He underwent four dialyses, and then diuresis occurred and he made a complete recovery. The exchange transfusions were

lifesaving, and the artificial kidney would have been of little use at the early stage of the illness when they were performed.

When special or immediate problems have been resolved, the standard general plan of treatment may proceed. It has been outlined many times in the literature, and need not be detailed here. However, the emphasis is on (1) restricting food and fluid so that the patient loses weight; (2) avoiding potassium and protein while providing a minimum intake of 800 calories; and (3) protecting the patient from pneumonia and other infections. Urinary-tract infection can be minimized by not using indwelling catheters.

In the patients discussed thus far, some attention has been directed to the rate of progress of the uremia and hyperkalemia that are manifestations of the patients' general catabolic state. We have not relied on exchange resins or on the administration of testosterone to reduce the rate of catabolism and the accumulation of potassium, but rather we have tried to estimate the time when treatment with the artificial kidney might be needed and to institute such therapy as soon as possible after the serum potassium began to approach 7 mEq./L.

WATER BALANCE

The rate of accumulation of urea, creatinine, phosphorus and other waste products allows a timely estimate of when dialysis will be required. There is another extremely important factor in these patients that frequently causes death and therefore demands vigorous control, at times requiring use of the artificial kidney. It is water balance.

Pulmonary edema in uremia is due to overhydration. The most striking illustration of this problem in the present series was a 38-year-old woman who was admitted to her hospital with confusion and vomiting. She was treated there for a number of days before it was observed that she was not urinating normally. Finally, it was learned that prior to her illness she had used carbon tetrachloride to clean floors in a closed room. By the time the patient was seen at the SUI Hospitals, her total body weight had risen to 132.5 lbs., as compared to her normal weight of 125 lbs. She had been ill and unable to eat for one week,

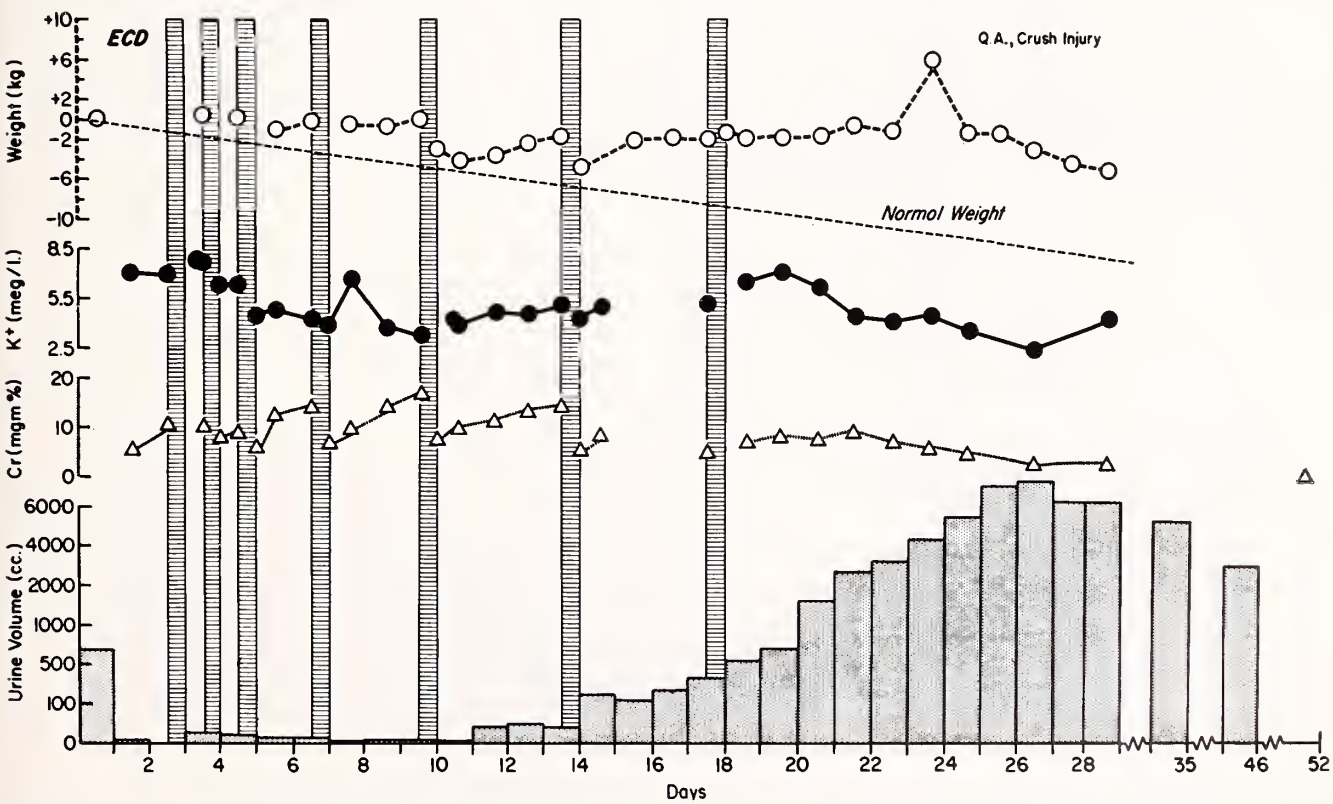

Figure 3 shows data collected over a period of 50 days from a 22-year-old farm boy who had suffered a severe crushing injury of the hips and lower extremities. The total body weight (open circles), serum potassium (dots) and serum creatinine (triangles) are plotted as line graphs and the daily urine volumes as a bar graph, with the extracorporeal dialyses (ECD) shown by the high vertical bars. There were seven treatments with the artificial kidney. Initially, these were at intervals of less than 24 hours. After the large amounts of potassium and other waste products had been released from crushed muscle and eliminated by the artificial kidney, the treatments were spaced at intervals of three or four days. Potassium-removing exchange resins were given by mouth, but they did not eliminate the necessity for removing other wastes by dialysis. Diuresis began (i.e., exceeded 1,000 ml./day) on the eighteenth day, and lasted about 18 days. This patient's daily urine concentration of glutamic oxaloacetic transaminase, leucine amino-peptidase and beta-glucuronidase were reported in a recently published paper.

and thus she should have lost 7 lbs. An adult who isn't eating should lose a pound a day, on the average, and if there is no weight loss, one can take for granted that the fat and body tissue which has been metabolized has been replaced by an equal retention of water. It could thus be estimated that this patient was about 14 or 15 lbs. overhydrated. If there had been no administration of salt, then that increase in total body water should have been accompanied by a dilution of electrolyte concentration of the same magnitude. As one can see from Figure 5, the initial concentration of serum sodium was 117 mEq./L., or almost exactly what one would have predicted from this degree of overhydration.

In other words, the total body water was 18 per cent above normal, and the serum sodium was decreased 18 per cent below normal. This inverse relationship between total body water and serum sodium concentration has been discussed before in this JOURNAL and elsewhere, and is a useful clinical check. The patient was severely dyspneic and cyanotic. She was taken immediately to the artificial kidney room, where with the patient in a sitting position, positive pressure endotracheal breathing was provided her for some eight hours, while the artificial kidney was run for the purpose of ultrafiltration. Four liters of excess fluid were removed. Initially, the dialysate used was prepared as a hypotonic solution so that a rapid shift of water would not occur from the patient's cells to her extracellular fluid, further aggravating the pulmonary edema. Even after that initial dialysis, the patient was allowed to remain slightly hy-

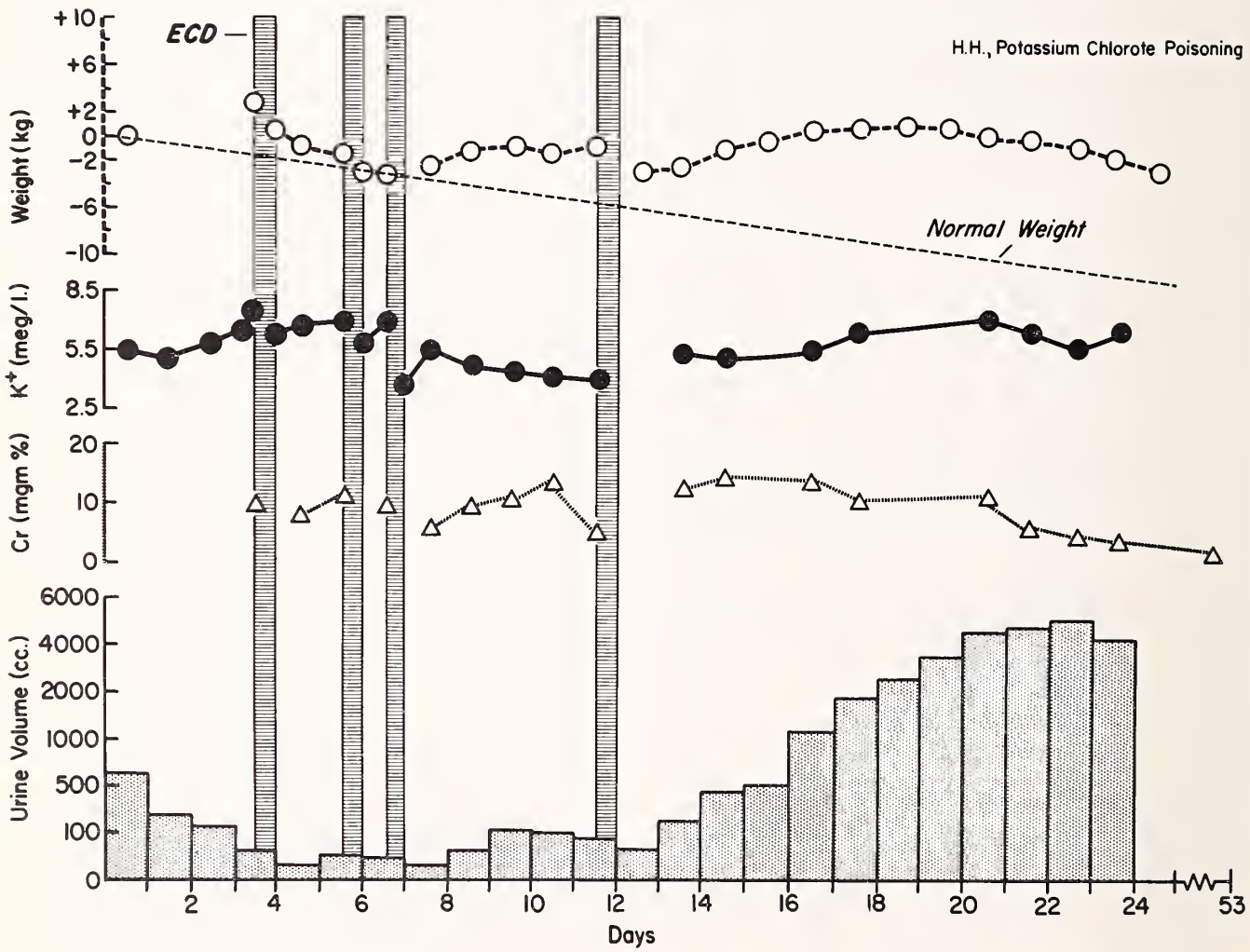

Figure 4 shows some of the observations made after a 19-year-old male college student ingested 40 Gm. of potassium chlorate. Initial treatment for methemoglobinemia consisted of two 5 L. exchange transfusions carried out in a nearby hospital. The patient was not moved to the SUI Hospitals until the third day. Early transfer might have been dangerous because of the anoxic anoxia. Four treatments with the artificial kidney are indicated by the high bars (ECD). Total body weight (open circles), serum potassium (dots) and serum creatinine (triangles) are shown as line graphs, and urine volume as a bar graph. This patient was allowed to eat and drink a little more than was ideal for perfect water balance, in anticipation of the diuresis. The diuresis was excessive in part for that reason, and some supplemental potassium was given him for several days, beginning on the seventeenth day. The theoretical line for normal weight was calculated on the basis of the patient's previous normal weight minus one pound per day. The patient became hungry and was allowed some low-protein and low-potassium food and fluid beginning on the seventh day. These were allowed in the knowledge that either he would soon diurese or that we would remove the excess fluid by ultrafiltration. Slight overhydration is probably safe in otherwise healthy young patients, but is not recommended.

potonic and her body weight was still above that calculated to be ideal for the number of days of her starvation. It was only after the second dialysis that her weight, sodium concentration and pulmonary edema were completely corrected. The subsequent return of kidney function and her convalescence were uncomplicated.

When patients with acute renal failure are well cared for, they do not succumb from the effects of excess potassium or water, but some occasionally fall prey to the ever-present bacterial population. One young boy demonstrates this problem strikingly, in that although we do not know the cause of his renal failure, he had passed through the diuretic phase and seemed certain to recover when he developed a severe hemolytic Staphylococcus aureus pneumonia and septicemia that led to his death. This is a problem common to all seriously ill patients, and the precautions and treatment are the same here. The patient should be protected from carriers of bacterial pathogens. Prevention of pulmonary congestion again needs to be mentioned in relation to the prevention of pneumonia. Earlier and more frequent dialysis or the prevention of the uremic state seems to improve a patient's resistance to infection. Prophylactic antibiotics probably should not be used. One specific caution—against the use of urinary cath-

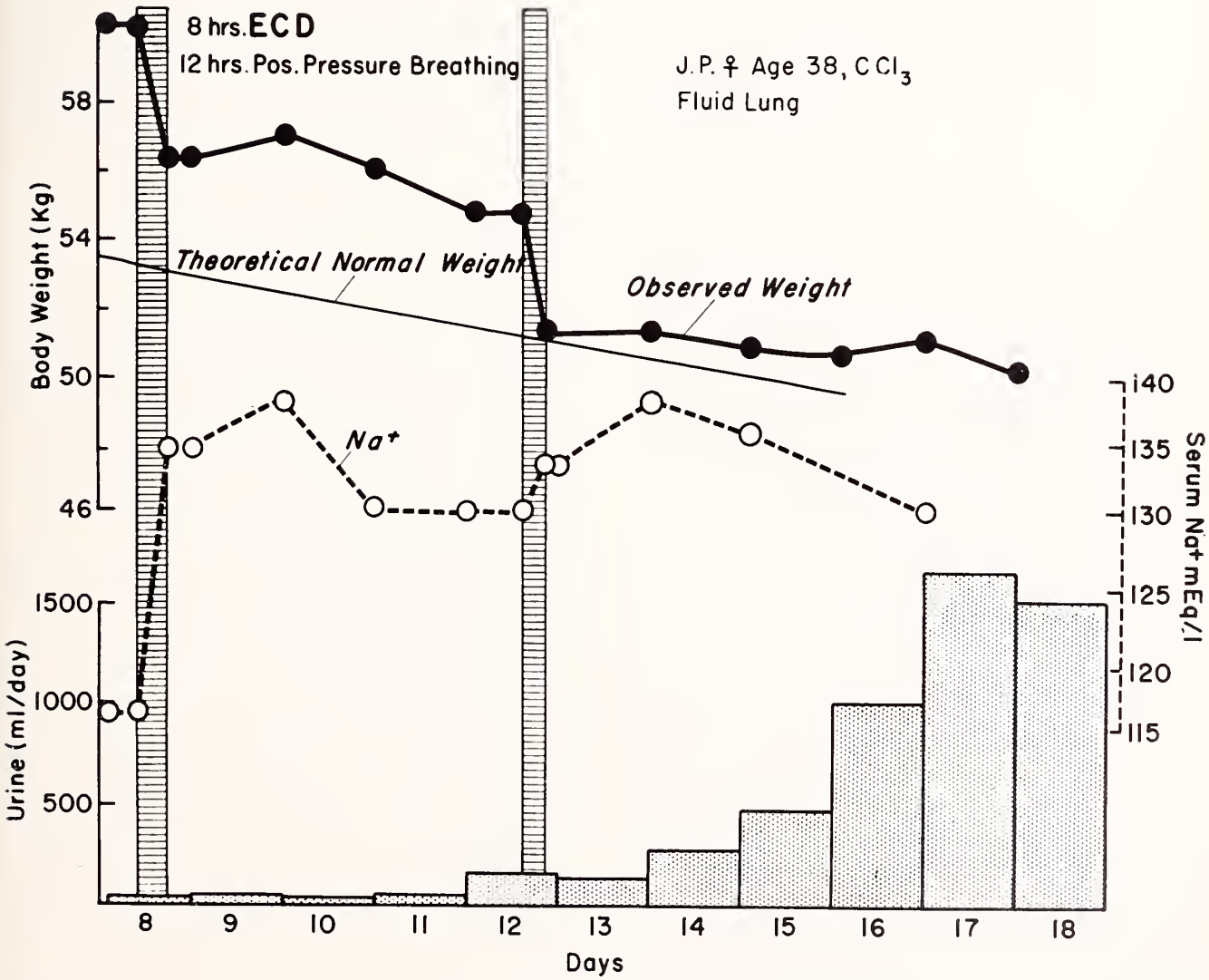

Figure 5 shows the results of some measurements in the case of a 39-year-old woman. The days following her exposure to carbon tetrachloride have been plotted on the abscissa. Two high narrow bars on the eighth and twelfth days indicate the time of the extracorporeal dialyses (ECD). The solid, heavy line joins the observed total body weights as compared with the narrower line which shows the normal theoretical body weights for a woman normally weighing 125 lbs. and losing one pound per day. The interrupted line joins open circles that indicate, on the right ordinate, the observed serum sodium concentrations. It is to be noted that initially both a high body weight and a low serum sodium concentration indicated water overload. The patient's cyanosis, her poor breath sounds and the chest roentgenogram showing generalized congestion were consistent with this. Excess fluid was removed by ultrafiltration, and at the end of the second treatment (ECD) her weight was normal. The patient was then allowed to drink freely, and became slightly overhydrated again until the diuresis became sufficient to bring her weight back toward normal. The daily urine volumes are shown by the bar graph at the bottom of the figure, and the milliliters per day can be estimated from the ordinate on the left.

eters—is often repeated. There is no advantage in collecting a few milliliters of urine daily, and an indwelling catheter greatly increases the likelihood of serious urinary-tract infection, either during or following recovery from acute renal failure.

USE OF THE ARTIFICIAL KIDNEY ISN'T ALWAYS JUSTIFIABLE

The patients selected for presentation here demonstrate the most important aspects of early evaluation, prediction relative to the rate of progression of uremia, plans for overall treatment, and bases for decision as to when a patient should be moved to a center for special care, if equipment is unavailable in the immediate area. The subject has been discussed by Lawton in this JOURNAL,* and more specific details as to indications for the actual timing of dialysis can be found in his article. We agree with Lawton and others that extracorporeal dialysis is not a dangerous procedure, that it should be used without fear, and that it is better to use it early than too late. The chief drawback to the artificial kidney is its costliness in materials and in the time of highly trained personnel. This is no problem where the indications are clear. Many patients, in the progress of an ultimately fatal disease, become uremic, and frequently the intensity of our desire to do something for them leads us to consultations regarding extracorporeal dialysis. Many such patients have been seen, and in some an attempt has been made to prolong life by removing water and the waste products of metabolism and by restoring normal body electrolyte composition. In a few instances the effort seems to have been worthwhile. The two children with leukemia have been mentioned. There were a few patients with chronic glomerulonephritis whose lives were prolonged for weeks or months in consequence of some very expensive and persistent efforts. Perhaps the patients were thus allowed time to straighten out their affairs and in other respects to prepare for the inevitable and ultimate failure of treatment.

Where uremia is severe when first recognized and where there has been insufficient time to make a certain diagnosis or to estimate the prognosis, there is no question that a few treatments with the artificial kidney are indicated. When the kidney has failed secondary to poor circulation in a patient with extensive trauma or after complicated surgery, such as the resection of an aortic aneurysm or surgery for biliary tract disease, the results are poor, and the decision as to whether or not to use the artificial kidney must be carefully considered in the light of all of the other potentially lethal non-renal components of the patient's problems.

Part of the difficulty in treating such patients with the artificial kidney is that to be successful, treatment should probably be started early and repeated frequently, and the very circumstances make early diagnosis and prognostication most difficult. Brief periods of oliguria are common in seriously ill patients. In spite of all that has been written, we have no adequate means at present of diagnosing acute renal failure early, in the presence of disease involving many organs, or in the complicated postoperative patient or the severely traumatized patient. In general, it can be said that unless renal failure is the single prominent cause of the patient's illness, and unless that renal failure is potentially acute and reversible, then extracorporeal dialysis should not be considered.

Another commonly seen patient is the one who has a rising blood urea nitrogen in spite of a large urinary output. He will be excreting 1,500 to 2,000 cc. of urine daily. The urine will have a fixed specific gravity. The patient will have lost his ability to concentrate or to dilute the urine. The number of functioning nephron units will have been markedly reduced, but the remaining nephrons will function well to maintain this diuresis. This patient should not be subjected to dialysis, for it would alter the renal osmolarity, inhibit the diuresis and effect an oliguria. He is best controlled by regulation of food and fluid intake, along with attention to the details of fluid management.

Another prominent question these days is whether a specific patient should be treated in a center with an artificial kidney or whether peritoneal dialysis would be equally satisfactory. There is no certain answer to this question. The answer depends in part upon the severity of the uremia, the peculiar problems of the patient, and the experience and attitudes of the moment of those in charge of the patient's medical care.

The artificial kidney is more expensive and complicated. It is also more efficient. Certainly the patient with severe crush injury should be treated with the artificial kidney, for it can remove waste products three times as fast. Even then, repeated treatments at intervals of less than 24 hours may be required. For the patient with chronic uremia, where the rate of catabolism is less and where the objective is only to prolong life until a few more diagnostic procedures can be done, or where an attempt is being made to find some temporary solution for an insoluble problem, then probably peritoneal dialysis is to be preferred, at least by those who are experienced with it.

TABLE 2

LONG TERM SURVIVAL PERCENTAGES

	Per Cent
Selected patients with poisoning and transfusion reactions	90
Remaining patients	14
Total of entire SUI experience	36

* Lawton, R. L., and Laughlin, L. L.: Treatment of acute renal insufficiency with special reference to artificial kidney. J. IOWA M. SOC., 50:367-372, (Jul.) 1960.

SOME STATISTICS FROM THE SUI STUDY

In evaluating the overall series, a separate focus should be considered, and this is presented in Table 2. It is noteworthy that the overall survival in the series is 36 per cent. If we were to separate the patients into two main groups, that is to say (1) those with chronic intrinsic renal failure, or renal failure plus severe associated disease, and (2) those with toxic poisoning reactions and transfusion reactions, we could get a more useful impression.

The long-term recovery of the group with chronic intrinsic renal disease or severe associated disease is 5 per cent. The long-term survival of the toxic reaction, poisoning or transfusion-reaction group is 90 per cent. In breaking down that second group, we found that the only mortality had been a boy, previously referred to in this paper, whose death resulted from a staphylococcal pneumonia that occurred after diuresis.

CONCLUSION

In the last 2½ years, we have come to a better understanding of some of the immediate problems involved in the selection and care of patients requiring extracorporeal dialysis. We have noted that the results are poor in those patients whose disease is chronic intrinsic renal failure, or renal failure associated with severe organic disease. The best results are found in patients whose acute renal failure is not on the basis of intrinsic irreversible renal disease.

We have become aware of the need for early recognition of the possible candidate for this adjunctive therapy, for aggressive treatment of coexisting conditions, and for attention to accurate control of fluid intake, measurement of body weight and protection from pathogenic bacteria.

The artificial kidney is a valuable tool that should be employed without hesitancy in the selected candidate, and not reserved as a "last ditch" measure.

Rupture of the Pregnant Uterus

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RUPTURE OF THE UTERUS is a complication of pregnancy associated with an alarming maternal and fetal mortality. Awareness of the predisposing factors, symptoms and therapy related to this catastrophe must be reemphasized.

EXPERIENCE AT S.U.I.

In the 35 years from July, 1926, through July, 1960, there were 36,000 deliveries at the State University of Iowa Hospitals. In that same length of time, there were 24 instances of rupture of the pregnant uterus—an incidence of one in every 1,500 deliveries. These figures include both private and ward patients.

SPONTANEOUS AND TRAUMATIC UTERINE RUPTURE

There were 10 patients who suffered ruptures of intact uteri. Four of those phenomena were spontaneous, and six were traumatic. Of the patients who experienced spontaneous rupture, in two it occurred following tumultuous labor. In the first patient, labor began spontaneously and proceeded rather slowly until the cervix was 5 cm. dilated. During the next seven minutes, the patient had two violent contractions, and delivered. There were extensive vaginal lacerations and a cervical laceration that extended 4 cm. into the lower uterine segment. In the second patient, labor had been induced by amniotomy and intravenous oxytocin, but the oxytocin had been discontinued for some time prior to the end of the first stage of labor. The second stage lasted only four minutes, and the contractions were tumultuous. The third patient whose uterus ruptured spontaneously had been delivered of average-size infants following her three previous pregnancies. The fourth labor began spontaneously, and after 15 hours of labor the cervix was 9 cm. dilated, but the head was not engaged. X-ray pelvimetry revealed measurements within normal range, but demonstrated fetal hydrocephalus. The hydrocephalus was drained, and the infant was delivered with the aid of fundal pressure after a second stage of labor lasting one hour and 23 minutes. The placenta was manually removed, and the uterus was explored, at which time rupture through the lower segment was found. This complication was probably due to disproportion, rather than to the destructive procedure.

The fourth patient whose uterus ruptured spontaneously was a 48-year-old para VII whose labor had begun spontaneously. Early in the labor, it had been determined that the presentation was of the right mentum posterior variety. Because the mother was multiparous and had what was felt to be an adequate pelvis, a trial of labor was allowed. Labor progressed satisfactorily, and after seven hours and 45 minutes the cervix was completely dilated. The position, however, was still right mentum posterior. A stillborn was delivered

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spontaneously from a mentum anterior position after a second stage of labor lasting one hour and 17 minutes. Shortly before delivery, the fetal heart rate decreased, but it returned to normal range following the administration of oxygen to the mother. Following delivery, the uterus was explored and felt to be intact. A cervical laceration was found and repaired. The patient continued to bleed vaginally, was cyanotic and hypotensive, and had a persistent tachycardia. Because of the continued vaginal bleeding and the patient's failure to respond to blood replacement, the uterus was reexplored and rupture through the lower segment was found. At that point, the heart stopped. Open chest massage of the heart was undertaken to no avail while a subtotal hysterectomy was carried out. The patient died during surgery. The probable cause of the uterine rupture was disproportion. There were two possible causes of death in this instance—hemorrhage from the uterine rupture, or amniotic fluid embolism occurring after the rupture.

Of the six patients whose uteri were ruptured by trauma, two were delivered by version and extraction. Both of these patients had begun to labor spontaneously. In the first, a transverse lie was present, and at the time the membranes ruptured spontaneously, the umbilical cord prolapsed into the vagina. While reaching for a foot to perform an internal version and extraction, the operator ruptured the uterus. The infant was delivered alive, but later died.

The second patient had been admitted to the hospital 24 hours after the spontaneous onset of labor. At the time of admission, the cervix was 6 cm. dilated, and no fetal heart tones were heard. Progress was slow during the next eight hours. At the end of that period, the cervix was 9 cm. dilated, and the head was in the right occiput transverse. The Kjelland forceps were applied, and rotation to the occiput anterior position was easy. Simpson forceps were then applied, but after gentle traction no progress was made. Internal version and extraction was done. The infant was hydrocephalic, but no great difficulty was encountered in delivery of the head. There was no abnormal bleeding postpartum. The placenta was delivered by simple expression. The patient was given an intrauterine douche to contract the uterus (1941), and at that time uterine rupture was found.

In two patients, the use of oxytocin was responsible for the uterine rupture. Labor was induced in the first of them through the use of castor oil, quinine and an enema, followed by intramuscular pituitrin in doses of II, III, IV, and V minims, given at 30-minute intervals. Fifteen minutes later, strong, frequent contractions began. Thirty minutes after that, the patient was having very painful uterine contractions. One hour later, the presenting part could not be felt on rectal examination, moderate vaginal bleeding was noted, and the contractions had ceased. The abdomen was very tender; there was flank dullness on the left; the small parts were readily accessible; and no fetal heart tones were heard. The patient showed evidence of shock. At the time of laparotomy, a complete uterine rupture and a retroperitoneal hematoma were found. The patient had a total hysterectomy and survived.

The second patient was a 44-year-old para XV with a breech presentation. The membranes ruptured spontaneously at term. Following a latent period of 24 hours, induction of labor with intramuscular oxytocin was begun. One hour later, the patient began having regular uterine contractions at four- to five-minute intervals. For unexplained reasons, the patient was given one minim of oxytocin intramuscularly two hours after the onset of contractions. After a total labor of four hours and 30 minutes, a viable infant was delivered by partial breech extraction. Abnormal bleeding followed the delivery, the placenta was removed manually, and a uterine rupture was found.

In the next patient, labor was induced by amniotomy because of unexplained fetal death at 39 weeks. After a latent period of 21 hours, dilute intravenous oxytocin was used to inaugurate uterine contractions. After three hours, this medication was discontinued, but contractions soon ceased. After a period of observation, a second course of intravenous oxytocin was used and satisfactory uterine contractions were established. The delivery of a macerated 4,200 Gm. infant was rather difficult because of shoulder dystocia. On uterine exploration, an old cervical laceration had extended into the lower uterine segment. Subsequent to the repair of the cervical laceration, a defect in the lower uterine segment was still palpable, but despite this finding nothing more was done. The patient's immediate postpartum course was uneventful, and she was discharged from the hospital on the sixth postpartum day. Two days later, she was readmitted because of vaginal bleeding. In the hospital, a second hemorrhage occurred, and examination under anesthesia at that time confirmed the finding of rupture through the lower uterine segment. A total hysterectomy was performed eight days after delivery.

The sixth patient who suffered a traumatic uterine rupture had begun labor spontaneously at term. After a labor of seven hours and 10 minutes, the cervix was completely dilated, but the head was still in the transverse position. After two hours in the second stage of labor, manual rotation of the head was attempted, but was unsuccessful. An attempt was made to apply the Kjelland forceps, but when the operator's hand was introduced alongside the fetal head, a fetal hand was also palpable and consequently the forceps were not applied. An attempt was made to correct the compound presentation by pushing the hand cephalad, and subsequently there was no presenting part in the pelvis and a diagnosis of uter-

TABLE I

	Spontaneous Rupture	Rupture in Patients With Previous Cesarean Section
Age	23, 29, 33, 35, 35, 37, 38, 40, 44, 48	19, 19, 20, 21, 22, 22, 22, 23, 24, 24, 25, 28, 32, 38
Parity	1, 1, 3, 3, 4, 5, 5, 7, 10, 15	1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 4, 10
Prior Surgery Other Than Section		
D & C	2	1
Myomectomy	0	0
Other	0	0
Number of Previous Sections		1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 4
Symptoms & Signs of Rupture		
Abdominal pain (1-8 days p.p.)	2	10
Shock	5	9
Vaginal bleeding	8	4
Fetal death	2	9
Displacement presenting part	2	4
Inertia	2	3
Abdominal distention	0	1
Types of Surgery		
Total hysterectomy	5	3
Subtotal hysterectomy	5	5
Repair of rupture	0	6
Operating Time (Minutes)		
T.A.H.	110, 110, 120, 165, 225	80, 150, 170
Subtotal	80, 100, 120, 120, 120	60, 62, 90, 90, 110
Repair		80, 80, 85, 95, 105, 122
Amount of Blood Required (Units) by Type of Surgery		
T.A.H.	2, 4, 5, 7, 19	0, 4, 4
Subtotal	0, 4, 4, 6, 7	1, 2, 2, 2, 8
Repair		0, 0, 1, 2, 7, 9
Febrile Morbidity by Type of Surgery (73.9%)		
T.A.H.	4	2
Subtotal	2	3
Repair	0	6
Maternal Mortality (4.2%)	1	0
Infant Mortality (71%)		
Stillborn	6	9
Neonatal death	1	1
Survivors	3	4

ine rupture was made. An immediate total hysterectomy was performed.

The signs and symptoms of uterine rupture in this group of patients are listed in Table 1.

The interval between the occurrence of the rupture and the diagnosis ranged from 0 minutes to nine days. The time from diagnosis to the beginning of surgical treatment was determined in nine instances. It varied from 15 to 30 minutes. All patients were treated operatively, five having total and five supracervical hysterectomies. Nine patients survived. These 10 patients received a total of 59 units of blood. The postoperative complications encountered were as follows: one mild ileus; one wound infection; one thrombophlebitis in the arm; one pyelonephritis; and six operative bed infections.

The weight of the infants ranged from 2,755 to 4,655 Gm., and in four instances it was over 4,000 Gm. Six of the infants were stillborn and four were born alive. One of them died in the neonatal period, and three were discharged from the hospital in satisfactory condition.

UTERINE RUPTURE FOLLOWING CESAREAN SECTION

There were 14 uterine ruptures in patients who had had previous cesarean sections. All of them occurred in classical cesarean section scars. Ten of the patients had had only one previous abdominal delivery. The indication for the primary cesarean section had been cephalo-pelvic disproportion in five patients, prolonged labor in three, uterine inertia in two, and placenta previa in one, and in two instances the indications for the previous cesarean section had not been reported.

Eight (57 per cent) of the ruptures occurred prior to the onset of labor, at 32, 36, 38, 38, 38, 39, 42, and ? weeks' gestation, respectively. In the eighth patient it was difficult to determine the time at which rupture occurred, for there had been no symptoms. At the time of elective repeat section, a 4 x 4 cm. defect was found in the uterine scar. In the other seven patients, abdominal pain was the first symptom noted, and only two patients had vaginal bleeding. On physical examination, five showed evidence of shock; no fetal heart was heard in five; abdominal tenderness was present in three; abdominal distention occurred in one; and the presenting part was out of the pelvis in one (See Table 1).

In the other six patients (43 per cent), rupture occurred after the spontaneous onset of labor. One patient started labor in the antepartum ward. During the period of preparation for surgery, she complained of sudden, severe abdominal pain, and at the time of section an incomplete uterine rupture was found. In a second patient, a vaginal delivery was elected in accordance with the patient's wishes. During the course of the labor, the patient complained of exquisite tenderness over the upper portion of the abdominal scar. When

the diagnosis of rupture was made, the fetal heart tones were absent and mild shock was noted.

A third patient began labor while in the hospital, and because rapid progress had been made by the time the operating room could be prepared, vaginal delivery was elected. The first stage of labor lasted four hours and 25 minutes, and delivery was accomplished by low forceps after a second stage of 12 minutes. Exploration of the uterus following delivery of the placenta revealed uterine rupture.

The fourth patient was admitted to the hospital five and one-half hours after the onset of contractions. During a period of observation, few contractions were noted. Subsequent examinations revealed the cervix to be 5 cm. dilated. It was decided to deliver the patient vaginally. One hour later, the cervix was completely dilated, the head at plus two station, and the occiput in the right posterior portion of the maternal pelvis. One and a quarter hours later, the patient was anesthetized by the "saddle block" technic for forceps rotation and delivery. While the position of the head was being confirmed, bloody amniotic fluid passed from the vaginia, and the presenting part was found to be out of the pelvis. Uterine rupture was diagnosed.

The fifth patient was admitted to the hospital in shock three and one-half hours after labor had begun spontaneously while she was at home.

The sixth patient began having abdominal pain at home, and after several hours developed rhythmic uterine contractions, but they ceased rather suddenly two hours later. She was admitted to this hospital four days afterward. On initial examination the fetal heart tones were absent and the abdomen was tender. Fetal parts were easily palpated. The diagnosis of uterine rupture was made, and it was confirmed at laparotomy.

The symptoms of uterine rupture were abdominal pain in three and vaginal bleeding in two. The signs at examination were fetal death in four, shock in four, uterine inertia in three, displacement of presenting part in three, increased accessibility of small parts in two, and abdominal tenderness in one (See Table 1).

The elapsed time from diagnosis to the start of surgical treatment ranged from 12 to 90 minutes. The treatment consisted of subtotal hysterectomy in five instances, total hysterectomy in three, repair of the uterus and tubal sterilization in one, and repair of the uterus in five. (Of those repaired, two have had subsequent pregnancies. One of these had no difficulty in the next pregnancy, but in the other patient the uterus ruptured again. The latter patient appears as two cases in this report.) These 13 patients received zero to nine transfusions, and the total of the transfusions for all patients was 42 (See Table 1).

Of these 13 patients, 11 had febrile postoperative courses, one had a wound infection, one had pyelonephritis, one had an adynamic ileus, pylonephritis, pneumonia and pelvic thrombophlebitis, and one had pulmonary edema from overtransfusion. All six patients whose ruptures were repaired were febrile, whereas five of the eight who had either total or subtotal hysterectomies were febrile.

The infants varied in weight from 2,190 to 5,000 Gm., only two weighing more than 4,000 Gm. Nine of the infants were stillborn. The other five were born alive. One died in the early neonatal period from atelectasis, and the other four were discharged from the hospital in satisfactory condition.

DISCUSSION

The incidence of rupture of the pregnant uterus is reported as being from 1:220[15] to 1:3029[23] deliveries. However, the majority of reports demonstrate that this complication occurs about once in every 2,000 deliveries, as shown in Table 2. Maternal mortality ranges from 4 per cent[18] to 61 per cent.[23] Fetal mortality in association with uterine rupture varies from 29.4 per cent[20] to 89 per cent.[3] In the present series, the maternal mortality was 4.2 per cent, and the perinatal loss 71 per cent (See Table 2).

Important etiologic factors are previous uterine surgery, such as cesarean section and myomectomy, trauma secondary to operative vaginal deliveries, and the use of oxytocin. All of these are represented in this series, with previous cesarean section being the outstanding predisposing factor. Version and extraction in most instances is being replaced by other modes of therapy, except for occasional use in delivering a second twin and delivering immatures or small prematures in conjunction with complications such as transverse lie and/or partial placenta previa.

Oxytocin, used to initiate or stimulate uterine contractions, is an important therapeutic tool, and when given judiciously for an appropriate indication and under appropriate conditions, need not jeopardize the patient or the infant.

Previous unrecognized uterine trauma must play an important role in spontaneous rupture, but it is virtually impossible to authenticate.

It is interesting to note that all 14 uterine ruptures following cesarean section occurred through classical scars. Throughout the area from which these patients are referred, it is probable that the most common procedure for abdominal delivery is the classical cesarean operation.

Although the common symptoms and findings of pain, shock and fetal death were well demonstrated in those patients who had uterine scars, such was not the case with the patients with previously intact uteri, for in them bleeding and shock were most common. Displacement of the presenting part and cessation of labor were also important findings.

Reduction in the lapse of time from rupture to diagnosis—requiring an awareness of the possibility of this complication—and reduction in the lapse of time from diagnosis to treatment—requir-

TABLE 2

Author	Incidence of Uterine Rupture	Maternal Mortality (Per Cent)	Fetal Mortality (Per Cent)
Bill, Barney, Melody	1:2756	22	62
Sheldon	1:1829	42.3	82
Lynch	1:1118	52	89
Beacham and Beacham	1:1328	47.9	79.6
Brierton, Philipp, and Webster	1:1961	33.3	66.7
Morrison and Douglas	1:1465	42.2	77.7
Meredith	1:1588	11.1	33.3
Bak and Hayden	1:1375	15	50
Maisel	1:1929	27.2	81.6
Voogd, Wood and Powell	1:1432	8.4	63.6
Burkons	.....	10.8	61.5
Posner, Smith and Trambert	1:2724	57.1	85.7
Dugger	1:3029	61	62
Fitzgerald, Webster and Fields	1:2196	54.8	79.1
Delfs and Eastman	1:1010	47.1	80.0
Whitacre and Fang	1:220	56.8	68
Jacobs, Cunningham, Daily and Conner	1:2402	12.2	38
Golden and Betson	1:1572	8.7	41.7
Posner, Santos, Posner	1:1274	4	54
Pedowitz and Perrell	1:1508	14.9	33.3
Ferguson and Reid	1:1204	5.9	29.4
Ware, Jerrett and Reda	1:1771	25	67.5
Erving	1:2598	29.7	62.5
Frudenfeld and Goplerud	1:1500	4.2	71

ing adequate physical facilities, personnel and decisiveness of action—are of prime importance in treating rupture of the uterus.

After the diagnosis of uterine rupture has been made, immediate surgery is indicated. If the patient is in shock, a cut down is indicated, and blood should be pumped in. One cannot wait for the patient to come out of shock before performing surgery, since major vessels are the source of bleeding. If possible, a total hysterectomy is preferable to a subtotal one, because of the vaginal and cervical lacerations that may have been sustained in the rupture.

In the patient whose rupture occurs through a cesarean section scar, one must consider uterine preservation if the defect is not too large, if the blood loss has not been excessive, and if the patient desires additional children. One must recognize the danger of subsequent rupture. This occurred in one patient in this series.

SUMMARY AND CONCLUSIONS

1. A series of 24 uterine ruptures, with a maternal mortality of 4.2 per cent and a fetal mortality of 71 per cent, has been presented. A tabular summary of other reported series is appended.

2. Factors which predispose to rupture of the pregnant uterus include previous cesarean section, traumatic operative delivery and the use of oxytocin.

3. A preponderance of ruptures has been shown to occur through classical cesarean scars, but this should not be thought to indicate that they cannot occur through other types of scars.

4. The necessity for awareness of this complication, the importance of the time lapses from rupture to diagnosis and from diagnosis to treatment, as well as the availability of the physical facilities and personnel for emergency surgical therapy, have been stressed.

5. The place of repair of the ruptured cesarean scar, in relation to the patient's condition, her parity and her desire for further childbearing, has been discussed.

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REFERENCES

1. Bill, A. H., Barney, W. R., and Melody, G. F.: Rupture of uterus, Am. J. Obst. & Gynec. **47**:712-717, (May) 1944.
2. Sheldon, C. P.: Record of 26 cases of rupture of uterus, Am. J. Obst. & Gynec. **31**:455, (Mar.) 1936.
3. Lynch, F. J.: Rupture of uterus, Am. J. Obst. & Gynec. **49**:514-531, (Apr.) 1945.
4. Beacham, W. D., and Beacham, D. W.: Rupture of uterus, Am. J. Obst. & Gynec. **61**:824-839, (Apr.) 1951.
5. Brierton, J. F.: Rupture of pregnant uterus, Am. J. Obst. & Gynec. **59**:113-124, (Jan.) 1950.
6. Morrison, J. H., and Douglas, L. H.: Rupture of uterus, Am. J. Obst. & Gynec. **50**:330-335, (Sept.) 1945.
7. Meredith, R. S.: Ruptured uteri at Woman's Hospital, Am. J. Obst. & Gynec. **70**:84-92, (July) 1955.
8. Bak, T. F., and Hayden, G. E.: Rupture of pregnant uterus, Am. J. Obst. & Gynec. **70**:961-971, (Nov.) 1955.
9. Maisel, F. J.: Rupture of gravid uterus; 10-year survey, Am. J. Obst. & Gynec. **72**:25-30, (July) 1956.
10. Voogd, L. B., Wood, H. B., and Powell, D. V.: Ruptured uterus, Obst. & Gynec. **7**:70-77, (Jan.) 1956.
11. Burkons, H. F.: Ruptured uterus, Obst. & Gynec. **7**:675-683, (June) 1956.
12. Posner, L. B., Smith, D. F., and Trambert, H. L.: 14-year survey of parturient ruptured uterus at Harlem Hospital, New York J. Med. **51**:641-644, (Mar. 1) 1951.
13. Fitzgerald, J. E., Webster, A., and Fields, J. E.: Ruptured uterus; report of 42 cases, Surg. Gynec. & Obst. **88**:652-660, (May) 1949.
14. Delfs, E., and Eastman, N. J.: Rupture of uterus, Canad. M. A. J. **52**:376-381, (Apr.) 1945.
15. Whitacre, F. E., and Fang, L. Y.: Management of rupture of uterus; report of 44 cases, Arch. Surg. **45**:213-234, (Aug.) 1942.
16. Jacobs, W. M., Cunningham, J. E., Daily, H. I., and Conner, J. S.: Third-trimester rupture of pregnant uterus; five-year survey, Obst. & Gynec. **19**:16-21, (Jan.) 1962.
17. Golden, M. L., and Betson, J. R.: Rupture of uterus; 18-year survey, Obst. & Gynec. **13**:506-512, (Apr.) 1959.
18. Posner, L. B., Santos, J. R., and Posner, A. C.: Rupture of uterus, Obst. & Gynec. **13**:288-293, (Mar.) 1959.
19. Pedowitz, P., and Perell, A.: Rupture of uterus, Am. J. Obst. & Gynec. **76**:161-171, (July) 1958.
20. Ferguson, R. K., and Reid, D. E.: Rupture of uterus; twenty-year report from Boston Lying-In Hospital, Am. J. Obst. & Gynec. **76**:172-180, (July) 1958.
21. Ware, H. H., Jarrett, A. Q., and Reda, F. A.: Rupture of gravid uterus; report of 40 cases, Am. J. Obst. & Gynec. **76**:181-187, (July) 1958.
22. Erving, H. W.: Rupture of uterus, Am. J. Obst. & Gynec. **74**:251-258, (Aug.) 1957.
23. Dugger, J. H.: Symposium on recent advances in gynecology and obstetrics; ruptured uterus in last trimester of pregnancy; report of 105 cases, S. Clin. North America **25**:1414-1424, (Dec.) 1945.

Correlation Between Cord Blood Oxygen Values and Psychological Test Scores

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A CAUSAL RELATIONSHIP between hypoxia and central nervous system damage has been convincingly demonstrated by animal experimentation. Windle and Becker,[1] using pregnant guinea pigs, demonstrated that induced hypoxia *in utero* was followed by gross neurological damage, detectable behavioral differences and inferior learning ability in the offspring. However, even with this experimental design that controlled many variables, the extent of impairment was not always predictable from the degree of hypoxia.

The relationship between hypoxia and central nervous system damage in human infants is less clear. Retrospective studies in human beings have yielded conflicting evidence of a relationship between presumed hypoxia in infancy, and neurological and behavioral abnormalities in childhood.[2, 3]

Two prospective studies designed to investigate the relationship between blood oxygen saturation values in newborn infants and subsequent behavior or test scores produced negative findings. Apgar *et al.*[4] failed to find a relationship between O_2 content of blood drawn in the first three hours after birth and either Gesell development ratings at approximately two years of age or revised Stanford-Binet IQ's at approximately five years of age. Caldwell *et al.*[5] found no relationship between O_2 saturation of cord or heel blood collected during the first hour of life and performance on behavioral tests between two and four days of age.

This paper reports the findings in another prospective study, based on an analysis of the correlation between cord blood oxygen saturation levels and subsequent intellectual maturation as measured by psychometric test scores.

Dr. Dunphy is the new head of the Department of Pediatrics at the SUI College of Medicine. The data for this report were derived from the Child Growth Study developed through the cooperative efforts of the Department of Pediatrics and Obstetrics of the University of Buffalo School of Medicine and the New York State Department of Health.

MATERIALS AND METHODS

The general plan of the Buffalo Children's Hospital Child Growth Study has been described elsewhere.[6] All infants in the study were born at Children's Hospital, Buffalo, New York, between September 1, 1949, and December 31, 1953. Initially, the only criteria for admission to the study program were the consent of the parents and the convenience of the staff—i.e., the majority of children included were born in the daytime. Subsequently, preference was given to unusual cases, such as breech, operative forceps and cesarean section deliveries.

The differences between the study group and the total hospital population are shown in Table 1. In the study group there were relatively more individuals born by cesarean, operative forceps and breech deliveries, and fewer born by spontaneous and low forceps deliveries. These differences preclude direct generalization claiming that the study findings are typical of what might be found in the total hospital population.

Infants were classified as premature if their birth weights were less than 5 lbs. 8 oz., and if their gestations had been less than 42 weeks. The number of premature infants with adequate data for this study was small. There were 329 children with known umbilical vein blood oxygen saturation ranging from five to 93 per cent and with at least one psychological test score before five years of age. The scores ranged from 49 to 159. Seventy-four per cent of the children had had at least five of a possible seven psychological tests, and 38 per cent had completed all of them. The psychologists were able to obtain scores from 96 per cent of the total tests made. There were 63 additional children whose parents had refused follow-up studies but who were induced to return for a single visit at the termination of the program. The data for those children influenced the study results at the five-year level only.

The infants received a physical examination following delivery. The study plan also included follow-up visits at 6, 12, 24, 36, 48 and 60 months

TABLE 1

TYPE OF DELIVERY OF LIVE BIRTHS, STUDY GROUP AND TOTAL HOSPITAL, 1949-1953

Type of Delivery	Study Group (1949-1953) Number of Live Births	Study Group (1949-1953) Per Cent of Live Births	Total Hospital Experience (1949-1953) Number of Live Births	Total Hospital Experience (1949-1953) Per Cent of Live Births
Total	329	100.0	12,829	100.0
Spontaneous	17	5.2	1,293	10.1
Low Forceps	200	60.8	9,437	73.5
Cesarean Section	53	16.1	482	3.8
Breech and Versions	30	9.1	780	6.1
Operative Forceps	29	8.8	837	6.5

of age, for physical and modified neurologic examinations, an electroencephalogram, a psychometric test and psychological examinations, and at 18 months for the psychometric test only.

The Cattell Infant Intelligence Scale was administered to all children from six through 18 months of age, and to some of the children at 24 months of age. Form L or M of the Stanford-Binet was used alternately for all other tests. The majority of children were tested within a month of the designated age. The chronological age to the nearest tenth of a month was used in scoring the Cattell Infant Intelligence Scale, and the Stanford-Binet was scored in the usual fashion.

Three measurements of cord blood oxygen saturation were obtained: vein oxygen saturation, which is presumably a measure of oxygen available to the infant through placental exchange; the difference between vein and artery oxygen saturation (A-V difference), a partial index of oxygen utilization by the infant; and arterial oxygen saturation, an index of the saturation of the blood returning to the placenta. These determinations, although precise, are limited indications of the oxygen economy of the infant. They do not measure volume and rate of flow, and are single measurements of levels known to be variable.

Ninety per cent of the cord blood samples were obtained within one minute of the infant's delivery, from doubly-clamped cord sections approximately 12 inches in length. The blood samples were collected anerobically from the cord vein and artery in separate heparinized syringes containing a drop of mercury. The syringes were immediately capped, shaken and placed in refrigeration. Van Slyke manometric gas analyses were performed in duplicate, usually within four hours and always within 12 hours, for determination of cord vein and artery O_2 content and capacity. The percentage of O_2 saturation was calculated.[7]

RESULTS

The ranges for IQ scores at ages six months and five years, and the ranges of cord vein and artery

TABLE 2

RANGES OF IQ TEST SCORES AND CORD BLOOD VALUES

	Ranges of O_2% Vein	Ranges of O_2% Artery	Ranges IQ 6 Months	Ranges IQ 5 Years
Mature	4.5%-92.4%	0.0%-69.3%	60-131	60-159
Premature	8.8%-92.6%	3.5%-63.3%	49-113	57-134

O_2 saturations at birth are given in Table 2. There are wide ranges in both cord blood values and IQ test scores. The test scores for the premature infants are lower than are those for mature infants, although the cord blood values are similar.

Correlations between IQ test scores and vein O_2 saturation are given in Table 3, by maturity. The correlations are statistically significant for the mature infants and for the total group at six months through 18 months, ranging from .14 to .19. The correlations are positive though not statistically significant, ranging from .03 to .13, at the other ages. No statistically significant correlation was found in the premature group. The differences between the correlations for mature and premature infants could not be explored with our data because of the limited number of premature infants. The prematures have been excluded from subsequent analyses because of the small numbers for whom complete data are available, and because of the differences in the degrees of maturity within that group.

The correlations of IQ test scores with arterial O_2 saturation, with A-V difference and with vein O_2 saturation are given in Table 4. Fewer cases were available for this analysis since it was not possible to obtain arterial samples in every case. The only correlations significantly different from zero were with vein O_2 saturation.

It is possible that the positive correlation observed between cord vein oxygen and IQ scores (Tables 3 and 4) may not reflect a direct relation-

TABLE 3

CORRELATIONS BETWEEN IQ AND CORD VEIN BLOOD O_2 SATURATION BY AGE AND TYPE OF TEST, AND BY MATURITY AT BIRTH

Type of Test:	Cattell				Stanford-Binet			
Age in Years:	½	1	1½	2	2	3	4	5
Correlation Coefficient								
All cases	.14*	.16*	.19*	.03	.05	.13	.09	.07
Mature	.18*	.16*	.19*	.00	.03	.10	.06	.05
Premature	−.17	.04	.03	.29	.12	.32	.26	.17
Number of Cases								
All cases	311	272	233	87	134	216	219	263
Mature	277	243	210	79	121	193	196	241
Premature	34	29	23	8	13	23	23	22

* Significantly different from zero at the 5% level.

ship, but only the effect of a relationship of both of these with either arterial oxygen saturation or A-V difference, since these cord blood values are all interrelated. This possibility was explored through a study of partial correlations, which may be thought of as the correlation between two variables with the effect of a third variable held constant. In Table 5, the total and partial correlations are listed for mature infants with the necessary data.

When the effect of arterial O_2 is eliminated from the correlation of IQ with vein O_2 (line 2, Table 5), the correlations remain virtually unchanged. This means that the correlations are not an indirect consequence of correlation between IQ and artery O_2. Similarly, the removal of the effect of A-V difference from the correlations does not alter the correlation with vein O_2 (line 3, Table 5). However, when the effect of vein O_2 levels is eliminated from the correlations of IQ with artery O_2 (line 5, Table 5) or from the correlation of IQ with A-V difference (line 8, Table 5), the correlations diminish. This suggests that the primary relationship is that between IQ and vein O_2, and the correlations of IQ with the other two measurements are mainly a consequence of the correlation these measurements and vein O_2 levels.

Since it has been demonstrated[8] that the vein saturation is generally lower in the group sampled before respiration than in the group sampled after the onset of respiration, the correlations for these two groups were compared (Table 6). Neither of the differences between the two groups is statistically significant.

The correlations found between IQ test scores and cord vein O_2 saturation cannot be explained by the inclusion of a disproportionate number of adverse delivery situations. The group delivered by cesarean section is the only group that differs statistically ($P < .02$) from the spontaneous and low-forceps delivery groups, as far as the mean cord vein O_2 saturation is concerned (Table 7). Furthermore, a review of the correlation tables failed to reveal any localization of association.

TABLE 4

CORRELATIONS BETWEEN IQ AND CORD BLOOD O_2 SATURATIONS OF INFANTS MATURE AT BIRTH, BY AGE

Type of Test:	Cattell				Stanford-Binet			
Age in Years:	½	1	1½	2	2	3	4	5
No. of Cases**	220	191	165	59	98	147	151	198
Correlation Coefficient								
IQ With O_2 Saturation								
Vein	.18*	.08	.16*	−.12	.00	.06	.01	.01
Artery	.12	−.04	.10	−.12	−.05	.07	.01	.01
A-V difference	.10	.14	.10	−.04	.05	.01	.00	.01

* Significantly different from zero at the 5% level.
** With both vein and artery O_2 determinations.

Thus, the association is not limited to low O_2 saturations and low IQ's.

There were five infants with very low psychological test scores, but these scores were not all associated with low cord vein O_2 saturations. One was a congenital cretin with a test score of 49 and a cord vein oxygen saturation of 59.6 per cent. That infant was a twin whose sibling was entirely normal. Another infant had a test score of 55 at six months of age. That infant was born with severe erythroblastosis, and had an initial hemoglobin of approximately 10 Gm. and an O_2 saturation of 34. 8 per cent. That infant died at a mental institution with severe neurological impairment, presumably due to kernicterus. The third baby had a test score of 57 and had been premature, weighing 3 lbs. 6 oz. at birth. The cord vein O_2 saturation was 44.5 per cent. That infant developed retrolental fibroplasia. Although some light perception is present, psychological testing was difficult and not necessarily representative of the child's ability. Subsequent observations, however, indicate that the child is truly defective. A fourth child attained a test score of 60. That infant was a triplet and had a birth weight of 5 lbs. 8 oz. The cord vein O_2 saturation was 45.0 per cent. There were no specific findings either on physical or on neurologic examination to account for the low test scores. The sibling triplets tested in the dull-normal range. The fifth child achieved a test score of 60. Delivery had been by elective cesarean section. The infant had aspirated a considerable

TABLE 5

CORRELATIONS AND PARTIAL CORRELATIONS BETWEEN IQ AND CORD BLOOD O_2 SATURATIONS OF INFANTS MATURE AT BIRTH, BY AGE

Type of Test:	Cattell				Stanford-Binet			
Age in Years:	½	1	1½	2	2	3	4	5
1. Corr. between IQ and vein O_2	.18*	.08	.16*	−.12	.00	.06	.01	.01
2. Effect of artery O_2 elim.	.14*	.13	.12	−.06	.04	.02	.00	.01
3. Effect of diff. elim.	.15*	−.01	.13	−.13	−.04	.07	.01	.01
4. Corr. between IQ and artery O_2	.12	−.04	.10	−.12	−.05	.07	.01	.01
5. Effect of vein O_2 elim.	.01	−.12	.01	−.04	−.07	.04	.00	.00
6. Effect of diff. elim.	(Same as line 3)**							
7. Corr. between IQ and diff. in O_2	.10	.14	.10	−.04	.05	.01	.00	.01
8. Effect of vein O_2 elim.	(Same as line 5, with opposite signs)**							
9. Effect of artery O_2 elim.	(Same as line 2)**							
Number of Cases:	220	191	165	59	98	147	151	198

* Significantly different from zero at the 5% level.
** This is a consequence of the relationship A-V diff. = Vein minus Artery.

amount of amniotic fluid and had presented a problem in resuscitation, with persistent and intense cyanosis for eight minutes. The cord vein O_2 saturation was 26.4 per cent. That infant has no abnormal findings on physical examination, but has generalized seizures and a grossly abnormal electroencephalogram.

DISCUSSION

The problem of oxygen deprivation in animals, and very probably in the newborn infant, is complex. A variety of factors are involved, rather than simply the direct effects of oxygen deprivation upon central nervous system tissue.[9-13] The extent to which these variables modify the effect of hypoxia in the newborn infant has not been elucidated. It is not surprising, therefore, that there is a great deal of apparently conflicting evidence concerning the relationship between hypoxia in infants and central nervous system damage.

The data presented in this paper demonstrate a positive correlation between the oxygen saturation of blood taken from the umbilical vein at birth and psychological test scores in infancy and early childhood. The correlations are statistically different from zero at six, 12 and 18 months of age. At ages two, three, four and five years, the correlations remain positive, but are not statistically significant. It should be emphasized that the positive correlation, although of a low magnitude, is a general one. It exists throughout the scale of O_2 saturations and IQ's.

As stated above, different tests were used as bases for estimates of IQ in the children at ages under two and over two years. Since the Stanford-Binet is not constructed for use with children whose mental ages are less than two years, the Cattell Infant Intelligence Scale was used for the younger children. Hence it is impossible to determine from this study whether the lower correlations at ages three to five years are due to the difference in tests, to a diminution with age in the effect of hypoxia at birth, or to other factors, including chance.

The finding of significant positive correlations is surprising in view of the complexity of the problem, the limitations of the methods employed and other factors that are known to have been operative and that could have masked these correlations. Heredity, environment, physical and emotional health—all of these are known to affect psychometric test scores. The diminution in the observed correlations at later ages could, in part at least, be explained by the increasing influence that some of these factors exert as youngsters grow older. The low magnitude of the correlation coefficients indicates the unpredictability of an individual infant's intellectual development on the basis of his cord blood oxygen values.

Work reported by Pennoyer *et al.*[14] and by this group[6] have demonstrated the rapid rise of O_2 saturation after birth. For example, in this study the average O_2 saturation rose from 51 per cent in the cord vein blood to 90 per cent 25 minutes after birth, as determined by ear-piece oximetry.[6] Because of the rapidity of this change, measurements taken at different times after birth are not comparable and well may differ in their implications.

This characteristic of O_2 saturation may partially explain the absence of demonstrable correlations in the studies by Apgar[4] and Caldwell *et al.*[5] Those studies, although resembling this one in purpose, have important differences in design that may account for the differences in results. The study by Caldwell *et al.* differs basically in that the investigators correlated oxygen saturation values obtained through the first 10 minutes of life with behavioral tests of newborn infants that were usually performed 24-48 hours post-delivery.

Apgar's study differs in several respects. First, cord blood samples were obtained after delivery of the placenta. Second, the correlations of Stanford-Binet test scores with cord blood values most nearly comparable in time of collection to those in our study included data on blood samples taken up to 4.9 minutes after birth, whereas the blood samples for our study were all collected within

TABLE 6

CORRELATIONS BETWEEN CORD VEIN BLOOD O_2 SATURATION OF INFANTS MATURE AT BIRTH, AND IQ BY AGE, AND BY TIME OF CORD BLOOD SAMPLING

Type of Test: Age in Years:	Cattell ½	Stanford-Binet 5
Correlation Coefficient		
Sampled before respiration	.23*	.08
Sampled after respiration	.12	.00
Number of Cases		
Sampled before respiration	153	147
Sampled after respiration	119	88
Time of sampling not known	5	6

* Significantly different from zero at the 5% level.

TABLE 7

PER CENT OXYGEN SATURATION OF CORD VEIN BLOOD AND RANGE BY TYPE OF DELIVERY

Type of Delivery	Number	Mean	Range
Spontaneous	17	54.9	4.5-83.4
Low Forceps	200	54.1	8.8-92.4
Cesarean Section	53	36.4	8.0-92.6
Breech and Versions	30	48.0	11.1-82.5
Operative Forceps	29	50.4	12.9-70.1

one minute following delivery. Furthermore, in Apgar's study there were only 78 cases, including a variety of age levels, for correlation studies. The cases tested in the younger age groups were appraised by means of Gesell development ratings. This group was composed of infants whose blood oxygen values had been obtained between 0 and 10 minutes after birth, and the lowest oxygen value found was used for correlation with the test scores. Thus there is again a difference in times of sampling, the number of cases studied was small (65), and test scores at ages from 21 to 34 months were grouped for correlation studies.

The work of Dawes *et al.*[15] on the fetal circulation of the lamb and of James *et al.* on that of infants suggest that oxygen saturation in the umbilical cord artery is indicative of the oxygen saturation available to the fetal tissues. However, we were unable to demonstrate any significant correlation of this oxygen saturation with subsequent test scores. Furthermore, analysis by partial correlation technics of the interrelationships among vein, artery and A-V difference values indicates that vein oxygen saturation is the primary factor in the relationship found between IQ test scores and cord blood oxygen values.

SUMMARY

Data has been presented establishing a positive correlation, of a low order of magnitude, between cord vein oxygen saturation values at birth and subsequent psychological test scores of children. The correlation was found to be statistically significant in children at 6, 12 and 18 months of age. Thereafter, a positive correlation persisted, but did not achieve statistical significance. These data cannot be regarded as constituting proof, but they do suggest a relationship between anoxia and low test scores. However, the magnitude of the relationship is too low to be clinically useful in predicting future mental development of the individual infant from his cord blood oxygen values. No statistically significant correlation between IQ scores and either artery or A-V difference in cord blood oxygen values was found.

The demonstration of a positive correlation between umbilical vein blood oxygen saturation and IQ scores suggests that further study of the problem would be justified. In view of the low order of magnitude of the correlations found, it would appear desirable to employ more precise parameters of hypoxia than are provided by umbilical vein and artery oxygen saturations.

REFERENCES

1. Windle, W. F., and Becker, R. F.: Asphyxia neonatorum; experimental study in guinea pig. Am. J. Obst. & Gynec. **45**:183-200, (Feb.) 1943.

2. Rosenfeld, G. B., and Bradley, C.: Childhood behavior sequelae of asphyxia in infancy; with special reference to pertussis and asphyxia neonatorum. Pediatrics **2**:74-84, (July) 1948.

3. Keith, H. M., and Norval, M. A.: Neurologic lesions in newly born infant; preliminary study; role of prolonged labor, asphyxia and delayed respiration. Pediatrics **6**:229-242, (Aug.) 1950.

4. Apgar, V., Girdany, B. R., McIntosh, R., and Taylor, H. C., Jr.: Neonatal anoxia; study of relation of oxygenation at birth to intellectual development. Pediatrics **15**:653-661, (June) 1955.

5. Caldwell, B. M., Graham, F. K., Pennoyer, M. M., Ernhart, C. B., and Hartmann, A. F.: Utility of blood oxygenation as indicator of postnatal condition. J. Pediat. **50**:434-445, (Apr.) 1957.

6. MacKinney, L. G., Ehrlich, F. E., and Chase, H. C.: Study of factors affecting neurological status of young children; plan of study and some neonatal findings. Am. J. Pub. Health **45**:653-661, (May) 1955.

7. VanSlyke, D. D., and Neill, J. M.: Determination of gases in blood and other solutions by vacuum extraction and manometric measurement. J. Biol. Chem. **61**:523-573, (Sept.) 1924.

8. MacKinney, L. G., Goldberg, I. D., Ehrlich, F. E., and Freymann, K. C.: Chemical analyses of blood from umbilical cord of newborn; relation to fetal maturity and perinatal distress. Pediatrics **21**:555-564, (Apr.) 1958.

9. Himwich, H. E., Alexander, F. A. D., and Fazekas, J. E.: Tolerance of newborn to hypoxia and anoxia. (Abst.) Am. J. Physiol. **133**:327-328, (June) 1941.

10. Villee, C. A., Hagerman, D. D., Holmberg, N., Lind, J., and Villee, D. B.: Effects of anoxia on metabolism of human fetal tissues. Pediatrics **22**:953-970, (Nov.) 1958.

11. Cooke, R. E.: "Physiology of Asphyxia Neonatorum." In: Windle, W. F., ed.: Neurological and Psychological Deficits of Asphyxia Neonatorium. Ch. VII, pp. 88-104, Springfield, Ill., Charles C Thomas, 1958.

12. Thorn, W., and Heitmann, R.: pH der Gehirnrinde vom Kaninchen in situ wahrend perakuter, totaler Ischamie, reiner Anoxie und in der Erholung. Arch. ges. Physiol. **258**:501-510, 1954.

13. Geiger, A.: Correlation of brain metabolism and function by use of brain perfusion method in situ. Physiol. Rev. **38**:1-20, (Jan.) 1958.

14. Pennoyer, M. M., Graham, F. K., and Hartmann, A. F.: Relationship of paranatal experience to oxygen saturation in newborn infants. J. Pediat. **49**:685-698, (Dec.) 1956.

15. Dawes, G. S., Mott, J. C., and Widdicombe, J. G.: Foetal circulation in lamb. J. Physiol. **126**:563-587, (Dec.) 1954.

16. James, L. S., Weisbrot, I. M., Prince, C. E., Holaday, D. A., and Apgar, V.: Acid-base status of human infants in relation to birth asphyxia and onset of respiration. J. Pediat. **52**:379-394, (Apr.) 1958.

AMA Attempts to Universalize Medical Terms

A paper back, pocket-size guide to the preferred medical terms of all important diseases will be published in June by the American Medical Association. It will represent the first step in developing a system of correct medical terminology so physicians from all parts of the world can understand each other, Burgess L. Gordon, M.D., AMA's director of nomenclature, said.

Entitled CURRENT MEDICAL TERMINOLOGY, the book will provide a definition of each disease with the known or possible causes and the most characteristic disturbances and findings. Through frequent revision—an updated revision is anticipated every year or 18 months—the book will serve as a focal point of expanding medical knowledge.

The first edition of CURRENT MEDICAL TERMINOLOGY will sell for just $2.00, and its fewer than 500 pages will list alphabetically 4,000 diseases and conditions, including psychological and neurological disorders, and definitions based on what is generally considered established data.

The new publication was designed as a companion to STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS (SNDO), the official disease listing published every 10 years since 1928, which in recent years has become "excessively large and complicated."

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 67-YEAR-OLD, white retired farmer was first admitted to the University Hospitals on August 24, 1960, because of drowsiness and lack of energy throughout the entire summer of 1960. During July, he had become dizzy while arising. He had been hospitalized elsewhere on August 1, 1960, after having passed blood in his urine twice, but on that admission his urine had not contained any blood. Findings at that time were reported to have shown the following: increased density in the right lower lobe on a chest film; negative gastrointestinal series; a "widened" abdominal aorta; and a nonprotein nitrogen of 116.5 mg. per cent, which was interpreted by a urological consultant as precluding the taking of intravenous pyelograms. No other results of the urological consultation were reported. Fluids were forced, "shots" were given, and the patient began to feel better. He lost 14 lbs., and noted some cold intolerance for two weeks prior to his admission here.

On the patient's admission to University Hospitals, the following additional facts were elicited. From 1952 until 1955, he had had episodes of shaking chills, drowsiness, diffuse abdominal cramps and constipation. In 1955, he had been treated for amebiasis, and the symptoms had abated. The symptoms had recurred in 1956, and the same doctor had found an enlarged liver and had treated him for amebic hepatitis, with subsequent relief of symptoms. He had never had diarrhea, but in 1947 on a trip to Mexico, his wife had had diarrhea.

In 1956, too, he had complained of drowsiness, lack of energy and coughing. His protein-bound iodine had been 2.2 micrograms per cent. Treatment with thyroid, three grains daily for one year, had improved his symptoms, and his protein-bound iodine later had been 4 micrograms per cent. In February, 1960, he had had a persistent cough and a postnasal drip. Eosinophils had been found in a nasal smear, and the symptoms had abated on chlortrimeton therapy.

The family history was significant only in that the patient's mother had died of uremic poisoning and ulcers.

Examination here revealed a blood pressure of 195/100 mm. Hg, a pulse of 60, a respiratory rate of 20 and a temperature of 98.6° F. The patient was alert and looked healthy. The eyegrounds showed a trace of arteriovenous nicking. The nasal mucosa was hyperemic and edematous. The thyroid lobes were not enlarged, but the isthmus was palpable and firm. No abdominal masses, tenderness or bruits were found. The prostate was flat and without nodules. The right popliteal pulsation was weaker than the left. There was a loss of hair over the feet and the lower one-third of the calves. The skin was dry, and the nails were brittle.

The basal metabolic rate was –29; the protein-bound iodine was 5.8 micrograms per cent (but only three weeks following intravenous pyelography); the cholesterol was 242 mg. per cent; the albumin-globulin ratio was 2.7/3.2 Gm.; the lupus erythematosus preparation was negative; the blood urea nitrogen was 80 mg. per cent; and the creatinine was 10.5 mg. per cent.

On the third hospital day, ureteral catheters were easily passed to each kidney. On the right, 43 ml. of clear residual urine was present, and on the left there was 86 ml. of clear urine. The bladder was inflamed, but the culture of the urine was negative. Ureteral catheter drainage brought the blood urea nitrogen down to 33 mg. per cent and the creatinine to 2.6 mg. per cent, but by the tenth hospital day the patient began to have a fever of 102° F. The blood cultures were negative.

On the fourteenth hospital day, an operation was performed. The ureters were obstructed by an inoperable mass that could not be removed, though the ureters were freed from this mass, and bilateral nephrostomies were performed. A large amount of pus was present in the left kidney. Postoperatively, there was difficulty with his fluid balance because of acidosis, but with fluid therapy he did well until the twenty-first hospital day. Most of his urinary output was from the left kidney, but in spite of good urinary output, his blood urea nitrogen rose to 135 mg. per cent on the twenty-first hospital day. He became anuric on the twenty-second hospital day, was afebrile, went into shock, and died at 8:45 p.m.

SUMMARY OF CLINICAL DISCUSSION

Dr. Bernard J. Begley, Urology: Beginning today's discussion, Mr. William Dougherty will speak for the Junior Class.

Mr. William J. Dougherty, junior ward clerk: The presentation is that of a 67-year-old Iowa farmer who had been in relatively good health until 1952, when he developed abdominal complaints that were intermittent until 1955, at which time he was treated by his physician for amebiasis and the symptoms cleared. He returned to his doctor in 1956, that time with a liver involvement, and again was successfully treated. Hypothyroidism was diagnosed in him late in 1956, and his symptoms cleared with treatment with thyroid for one year. Thereafter he was relatively asymptomatic, according to the history, until July, 1960, when he began noticing dizziness, drowsiness and lack of energy. He was hospitalized on August 1, 1960, after noting hematuria on two occasions. He showed improvement, although he lost 14 lbs. before his admission here on August 24, 1960.

The results of the physical examination and the laboratory findings have been outlined in the protocol. In addition, his blood and urine studies here were negative. On the tenth hospital day, the white blood cell count had risen to 17,700/cu. mm., with a differential of 17 bands and 76 segmented polymorphonuclear leukocytes. A chest film taken at that time indicated that the lung fields were clear and that there was left ventricular hypertrophy.

We feel that this man had definite signs of hypothyroidism, as indicated by his decrease in energy, cold intolerance, skin and nail changes, a rather slow pulse rate, a low basal metabolic rate and the report, though possibly erroneous, that he had improved with thyroid medication between 1956 and 1957. That the protein-bound iodine was within the normal range is explained by the fact that the patient's blood urea nitrogen was elevated. The fact that the cholesterol was within normal limits does bother us just a bit, we admit. In addition, we think that there had been chronic liver damage, on the basis of the history of amebiasis given in the protocol. We feel that this explains the inversion of the albumin-globulin ratio, though there can have been a chronic wasting disease or a carcinoma. The obvious problem in differential diagnosis in this case is the inoperable mass that was found on surgery.

The passage of catheters and the discovery of 43 and 86 ml. of urine on the right and left sides, respectively, indicates to us that there was obviously a mild hydronephrosis. We understand that this was confirmed by a retrograde pyelogram made at that time.

Congenital abnormalities, we think, are ruled out by the successful passage of catheters plus the fact that the patient gave no history pertaining to the urinary tract before his entrance into this hospital. We feel that inflammation was the cause of his rise of temperature on the tenth hospital day, but also that it had not been a reason for his entering complaint. The possibility of stones in the ureters, with fibrosis of the surrounding areas, has been ruled out by the finding of an inoperable mass. It is further discredited by the negative retrograde pyelogram, by the fact that the ureteral catheters were passed easily, and by the fact that on cystoscopic examination, the ureteral orifices were evidently normal.

The final possibilities for obstruction of the renal pelvis or the ureters are tumors of the pelvis, the ureter, the kidney or the surrounding retroperitoneal areas. Papillary tumors of the bladder are ruled out by the negative cystoscopic examination. Infiltrative tumors of the bladder, however, sometimes present with edema and hyperemia of the bladder mucosa, and these to an inexperienced person could represent cystitis. We feel that the lack of distortion of the bladder and, again, the fact that the catheters were passed easily justify ruling out this possibility too. According to Dr. Begley, a rectal examination made at this time was reported in the history as having been negative for masses or tenderness, thus probably ruling out a pelvic neoplasm.

This man's history of amebiasis leads us to a couple of considerations. First of all, there may have been an ameboma, a chronic granulomatous tumor in the rectosigmoid area, with compression of the ureters. Second, there is a possibility of pelvic abscess on the basis of a subclinical rupture of the gut. These two possibilities, however, are ruled out by (1) the negative gastrointestinal series that was performed in another institution, (2) the lack of rectal or abdominal tenderness, (3) the lack of signs of bowel obstruction and (4) the absence of systemic signs of an abscess.

Aneurysm of the abdominal aorta has been reported as a cause of bilateral ureteral obstruction. This can occur either by direct compression or by extravasation of blood into the retroperitoneal area, with organization, fibrosis and contracture involving the ureters in consequence of their close proximity to the aorta in this region. No palpable mass was found and no bruits were heard, but the patient was 5 ft. 8 in. tall and weighed 180 lbs., so a finding such as this could possibly be missed on physical examination. We admit that this lesion is rather rare, but in a man of the patient's age we don't feel that it can be ruled out.

Secondary carcinomas are the commonest neoplasm of the ureter. These are often essentially asymptomatic until the manifestations of uremia make them evident. In the male, carcinoma of the rectosigmoid, bladder and prostate are the most likely primary sites, and in this case there are no indications either on history or on physical examination that there was a primary neoplasm in any of these locations. Primary carcinomas of the renal pelves and ureters are classically accompanied by

hematuria, a mass in the flank and flank pain. In this patient, only hematuria was present, but as is classically the case, it was painless and intermittent. Very few bilateral renal neoplasms have been reported in the literature, but regional retroperitoneal metastasis or extension through the renal veins across the midline could explain the fact that both ureters were involved.

Our final possibility for bilateral obstruction of the ureters, with resulting hydronephrosis and pyelonephritis, is a primary retroperitoneal tumor. A review of the literature and of cases in this hospital between 1925 and 1946 was reported by Donnelly in 1946. According to that report, the chief and/or entering complaint was often vague abdominal pain, constipation and progressive loss of strength and weight. Often, an abdominal mass was found in these cases. Again we believe that this patient's physical dimensions could have masked the presence of such a mass. Dr. Donnelly does state that involvement of both ureters was noted in two of these cases, and that this diagnosis is often made by the urologist following retrograde pyelography, because of distortion of the ureter or displacement of the kidneys. These changes were indefinite or absent in the case that we are considering. The age of this patient, as compared with the median age of 43 years, might possibly rule against this tumor.

Of the four final categories—i.e., abdominal aneurysm, primary or secondary carcinomas of the renal pelves or ureters, and primary retroperitoneal tumor, we choose the last as our provisional diagnosis. The patient's condition resulted in hydronephrosis and pyelonephritis. We feel that hypothyroidism and diffuse liver damage as a result of amebiasis are to be postulated as coexisting pathologic conditions. We believe that the terminal event resulted from uremia, with severe fluid and electrolyte imbalance plus, possibly, a compromise of the renal blood supply by the mass, and resultant acute renal failure.

Dr. Begley: Thank you, Mr. Dougherty. Your discussion was a fine one, and I think you've done a good job, first, in discarding the false clues, second in getting down to the fact that the patient had bilateral ureteral obstruction, and finally in attempting to determine the exact cause.

Dr. Rubin H. Flocks, Urology: I think that the student's discussion was an excellent one, particularly since he didn't have an opportunity to see the x-ray films, which give quite a great deal of information.

The essential thing, as has been emphasized, is the renal insufficiency on the basis of ureteral obstruction. The question is: "What can possibly have been the reason for this ureteral obstruction?" Many of the possible explanations have been outlined very well, but if we go back to the x-ray films, there are certain points in them that I should like to emphasize. As has been said, the fact that the renal catheters went up very easily is an extremely important point. On the right, the x-rays show a dilation of the kidney pelvis and reveal that this kidney was small, and showed a tremendous amount of clubbing of the calyces and a tremendous amount of renal destruction. On the left the x-rays show similar changes, but with hypertrophy of the renal obstructions and less marked changes in the calyces. Now this is extremely important from the point of view of the patient's history. It is very likely that he hadn't had amebiasis, but that his problem back in 1952-1955 (with vague abdominal pain, chills, fever and constant constipation) may well have been associated with this lesion that was producing obstruction, more marked on the right side at that time, and damaging that kidney over a long period of time. Thus, the chances are very good that changes have not been found at postmortem indicating amebiasis in the liver. Actually, it is most likely that the right-sided difficulty and the general illness that he had in 1952-1955 came from a lesion that was producing obstruction to the ureters.

If my theory is correct, only the right side was involved back in 1952-1955. Finally, the left side became involved, and the patient became severely uremic. He had a creatinine of 10 mg. per cent and a blood urea nitrogen of 80 mg. per cent, and this is frequently associated with a dry skin and the other changes usually found with hypothyroidism. At any rate, there is no question that the patient's right kidney had been damaged over a much longer time than his left.

Now, what are the lesions that produce obstruction to both ureters, perhaps starting on the right side first, then involving the left side and finally producing complete obstruction, but at the same time permit ureteral catheters to be introduced easily? In this set of pyelograms, one sees a hydroureter and a hydronephrosis, with no evidence of any congenital obstruction and with ureters that are pointed inward rather than outward. What lesion, though rare, will most frequently produce this set of circumstances?

There are many causes of intrinsic ureteral obstruction, both congenital and acquired. None of these common conditions fit this situation. There is no evidence of a congenital situation from the pyelogram, and the acquired lesions would produce difficulty in passing a ureteral catheter.

Of the extrinsic lesions, very few are bilateral. The bilateral ones are the congenital extra-urinary tract obstructions, but there is no evidence of them here. The acquired lesions are, primarily, (1) diverticulosis of the colon with chronic abscess formation in the pelvis—usually associated with marked difficulty in passing ureteral catheters—(2) metastases or extensions of the various malignant lesions such as carcinoma of the prostate, carcinoma of the bladder or carcinoma of the colon in the male, and (3) inflammation from the prostate and seminal vesicles. Bladder diverticulum is a cause of unilateral obstruction. Retroperitoneal

neoplasm, like malignant lymphoma and metastasis from carcinoma of the testis, will push the ureters outward and anteriorly, instead of keeping them medial or even seeming to pull them medially. Endometriosis will obstruct the ureter, usually unilaterally and down low in the kidney pelvis. Aneurysm of the abdominal aorta will produce obstruction when a ureteral catheter is passed, and practically *never* starts on the right side and then extends over to the left side. There seems to be evidence that the obstruction on the right side in this patient had been present for a long period of time.

Thus we are left with one condition that seems to fit everything—periureteritis plastica or retroperitoneal fibrosis, a chronic inflammatory lesion pretty well limited to the fascia of Gerota or the so-called "urinary tract fascia propria." The fascia, in this condition, shows a great many collagen changes and in some respects looks like regional ileitis. Clinically, this condition fits the patient's picture very well, for it starts on one side, finally extends over to the other side, is long-standing, fits with the x-ray pictures, and permits the easy passage of ureteral catheters.

Assuming that this condition was found at the time of operation, we can assume that a nephrostomy was carried out bilaterally to sidetrack the obstruction. Apparently the patient did well for about seven or eight days following that operation, but then something happened so that he became severely anuric and died within 24 hours. The best possibility, I believe, is that the patient was living on the left kidney and that the left ureterostomy tube became plugged, or something of that sort. Attempts to solve that difficulty must have spread infection into that left kidney, producing an acute pyelonephritis, sepsis, shock and death. I think that the immediate cause of death was this situation that I have last described.

Dr. Begley: The patient was in difficulty 24 hours prior to his death. The left nephrostomy tube was not draining well and had to be replaced. After ureteral catheter drainage and after the pyelograms had been obtained, observation of the medial deviation of the ureter, with hydronephrosis and hydroureter above it, led us to consider two possibilities. We thought his problem might be either periureteritis plastica or non-specific retroperitoneal fibrosis, and also because there was some calcification at the lower end of the aorta on the lateral film, Dr. Lawrence saw the patient and felt that he did have an aortic aneurysm. His opinion was that it probably had not leaked and was not associated with the present illness, but because of this possibility Dr. Lawrence assisted at the patient's operation.

Dr. Jack M. Layton, Pathology: At autopsy, the most striking findings were related to the retroperitoneal tissues and the urinary tract. A fibrous mass lay in the retroperitoneal tissues over the promontory of the sacrum, and extended laterally to envelop the ureters. The upward extension was in the region of the renal pelves, and the downward extension was to the upper border of the bony pelvis. The fibrous mass enveloped the retroperitoneal structures but did not invade them.

The ureters pursued an intraperitoneal course from the renal pelvis to the rim of the bony pelvis, the peritoneal incision having been sutured beneath them. They had been freed from the fibrous mass, mobilized into the peritoneal cavity, and then sutured beneath the peritoneum. There was no evidence that the peritoneum was involved in this process, for it was a retroperitoneal process.

Microscopically, very dense, collagenous tissue was admixed with adipose tissue in varying amounts, and in the areas where the surgical operation had been performed, there were acute cellulitis and necrosis secondary to the operative procedure.

The right kidney weighed 60 Gm., as against a normal of about 150 Gm., and the left kidney weighed 385 Gm. The former disclosed chronic atrophic pyelonephritis, and the latter acute and chronic pyelonephritis. Bilateral nephrostomy wounds to the flanks were present, and there was a dehiscence of the left flank incision.

In the urinary bladder, there were superficial ulcers and a mild trigonitis.

Atherosclerosis and its complications were present in the vascular system. An aneurysm with mural thrombosis was present in the terminal abdominal aorta and the common iliac arteries, and atherosclerotic plaques, with ulceration and mural thromboses, were present throughout the aorta. At a point one centimeter from the origin of the left main coronary artery, an atherosclerotic plaque occluded about 80 per cent of the lumen, but distal to that point the coronary artery was not involved. The right coronary artery showed no particular atherosclerosis.

The heart was enlarged, weighing 530 Gm., and the left ventricle was enlarged predominantly.

Although the gallbladder was enlarged and distended with bile, no obstruction was found in the biliary system.

Mild, subacute fat necrosis was found in the pancreas. The liver displayed fatty metamorphosis of moderate degree and pericholangitis, but there was no evidence remaining to indicate amebiasis.

Although the thyroid gland appeared normal in size, microscopically it displayed moderately severe atrophy and fibrosis, with lymphocytic infiltrates in the gland. Some old, healed tubercules were present in the hilar lymph nodes, and hypostatic pneumonia was an agonal feature.

This patient's case was one classifiable as so-called idiopathic retroperitoneal fibrosis, periureteritis plastica, periureteritis obliterans, periureteric fibrosis, or whatever else you may choose to call the disease. He had had pyelonephritis sometime earlier, with resultant extensive atrophy of the kidney—chronic atrophic pyelonephritis. Ureteral obstruction was produced as the ureters were

progressively encased in the fibrous proliferations that interfered with the peristaltic activity of the ureters and interfered with the transport of urine. There was secondary pyelonephritis again in the obstructed kidney. The immediate cause of death was sepsis following the difficulties with the acutely infected kidney.

The students' diagnosis was not far off, in a sense, for the type of lesion they described—retroperitoneal malignant neoplasm—could be bilateral, could produce the obstruction and could produce ureteral displacement. One might very strongly consider malignant lymphoma, Hodgkin's type, or retroperitoneal sarcoma as producing a somewhat similar lesion, but the ureteral lesion would be very important in the differential diagnosis.

The cause of this condition is completely obscure. Many hypotheses have been advanced. It is a disorder that has been said to be confined to Gerota's fascia. Dr. John Hutch, a classmate of mine and a former resident in urology here, has postulated that this should really be looked upon as a fasciitis. Could you tell us about Gerota's fascia, Dr. Flocks, and about whether or not the course of the disease is consistent with Dr. Hutch's view?

Dr. Flocks: Most of the cases of bilateral obstruction of the kind described are ones in which the lesion extends across the midline and involves the great vessels. Ordinarily, we feel that the fascia of Gerota, or the urogenital fascia propria, does not extend across the midline, and the vessels as they come to the kidney and to the ureters have to enter the fascia of Gerota. Thus, in a sense, our concept of the normal physiology does not fit with Dr. Hutch's idea.

Ormond, who described the first successful treatment of such cases in this country, back in 1948, has reviewed the matter completely in J.A.M.A. for November 19, 1960.* Regarding the etiology, he says:

"The impression is given of a slowly progressive inflammation originating about the great vessels and spreading laterally, enveloping, but rarely invading, the retroperitoneal structures as it spreads, healing and contracting even as it spreads. The retroperitoneal structures, the ureters, are particularly vulnerable. Arteries and nerves are sturdy structures, not nearly as compressible as veins and ureters. Compression of veins, if not too rapid, is compensated for by the collateral circulation, and there need be no evidence of such compression, but there is no compensatory drainage of urine, and compression of the ureters is bound to affect the kidney. Hence, in all the cases reported, its presence has been brought to light by its effect on the kidneys."

Now the areas that have been implicated have been, primarily, the periaortic lymph nodes. The lymph glands, actually, had been mentioned only three times in the 64 proved cases that Dr. Ormond reported.

Dr. Layton: I might say that in the current case they do not appear to have been involved.

Dr. Flocks: Organizing hematoma due to hemorrhage, trauma or other conditions has been advanced as a cause. Hemorrhage with hematoma formation can occur anywhere in the body, and a great deal is known about the fate of that sort of phenomena. Hematomas may be absorbed. If infected, they may become cystic—i.e., surrounded by a fibrous capsule—and they have a tendency towards calcification. Their pattern does not resemble that of the fibrosis that we are considering here. It has been suggested as being, perhaps, significant that none of these cases occurred before the antibiotic era. Perhaps infections in these patients have been only partially controlled by antibiotics, and these lesions may be the result.

Ileitis has been mentioned as a possible cause because it is often difficult to detect and could easily be overlooked. It certainly could be overlooked in retroperitoneal operations, but there have been a large number of transperitoneal operations in which it was not found, nor was it found in any of the autopsies. Thus, although ileitis undoubtedly can cause periureteral fibrosis, though there are several reports indicating that ileitis has caused it, and though there are several reports showing a relationship between ileitis and ureteral obstruction, we can definitely rule out ileitis as a cause of the idiopathic fibrosis that we are considering in this patient. Frank Hinman, Jr., has recently redirected attention to the phenomenon connected with temporary ureteral obstruction in which diffuse extravasation of the urine occurs into the urogenital fascia propria, and he feels that in some instances it may be the cause of the condition we are discussing.

Riedel's struma, otherwise known as chronic ligneous thyroiditis, is also a mystery, and in this particular case there was a fibrosis, at least, in portions of the thyroid. Whether there is a connection in this instance, we do not know.

In Dupuytren's contracture of the palmar fascia, there is a thick, confluent mass of fibrous tissue with foci of lymphocytic infiltration in the palm of the hand. This may be a related situation. At any rate, there are many theories, but no one really knows what causes this chronic lesion.

Dr. Layton: Do you know anything about the patient's blood pressure in 1960?

Dr. Begley: You are referring to the patient's first admission?

Dr. Layton: Yes, at his first admission. I am wondering whether he developed a "Goldblatt kidney."

Dr. Begley: There is no notation in the history regarding his previous blood pressure determinations.

I think that the x-ray taken when the nephrostomy tube was replaced on the day prior to the pa-

* Ormond, J. K.: Idiopathic retroperitoneal fibrosis. J.A.M.A., 174:1561-1568, (Nov. 19) 1960.

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References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

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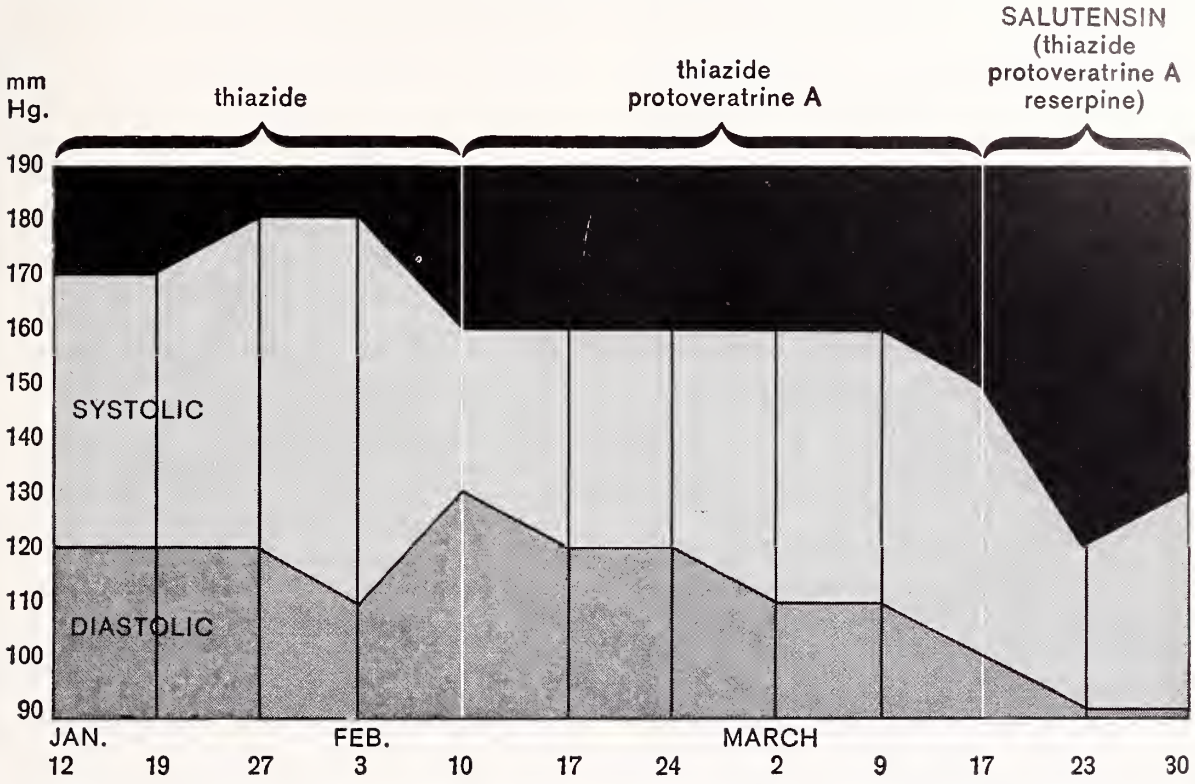
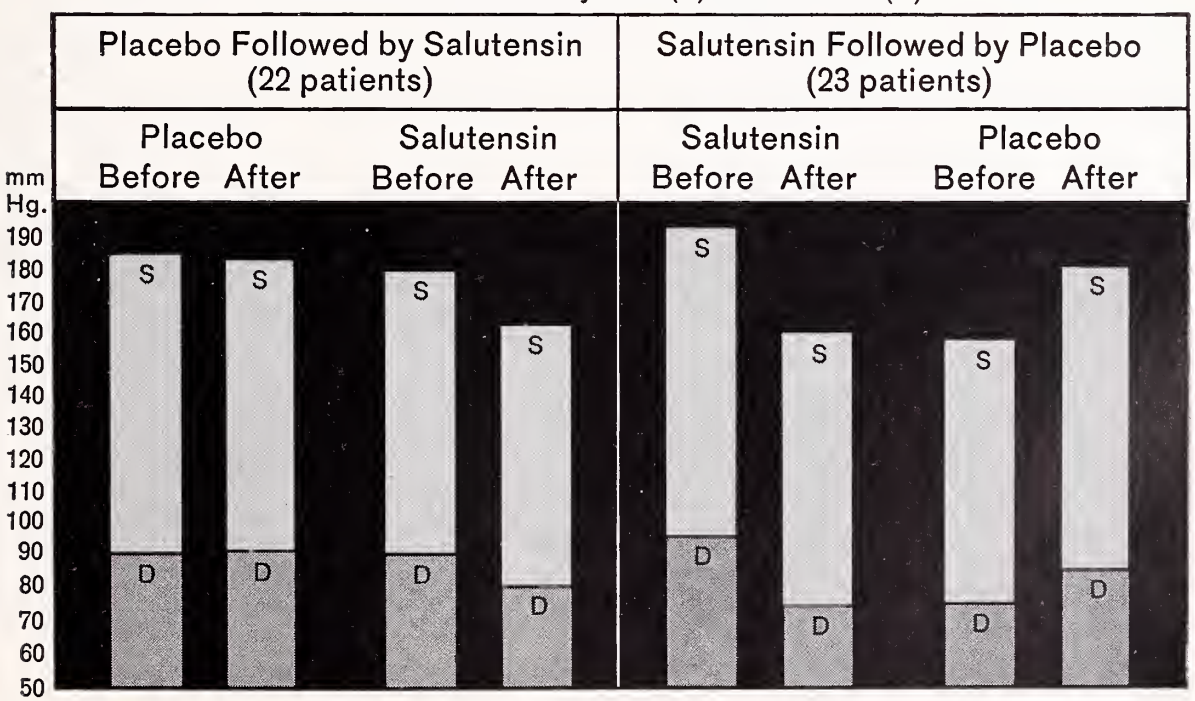
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

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tient's death is an interesting one. It shows the nephrostomy tube entering the left kidney. The contrast medium was in the kidney and, in addition, there appeared to be some extravasation of the contrast medium. It also shows the ureter that had been placed in the peritoneal cavity to get it away from the mass, and its course was the typical one for such a ureter following surgical therapy. The extravasation there is the important thing. The patient had pulled his nephrostomy tube out. We don't know how he pulled it out, but it didn't drain. Although we were able to replace it, the instrumental trauma probably led to a bacteremic episode, and in this azotemic and severely debilitated man, there was no response as regards elevation of temperature and there was no response as regards elevation of white blood cell count. The first real response was that of vascular collapse.

Dr. Flocks: I'd like to mention the therapy of this particular situation. We've actually had four cases, and the therapy cited in the literature is borne out by our own experience.

In our first case, we didn't know about Ormond's description. The patient developed difficulty on the right side, with the typical findings only on the right side. I explored him and found essentially what was found in the man whom we have been discussing. I made biopsies of the retroperitoneal mass, which I thought was a retroperitoneal sarcoma obstructing the right kidney, and the pathologists' report on the frozen section was "fibrosis, fibrous tissue and no tumor." Because I didn't believe the report on the frozen section, I took out more pieces and proceeded to remove the ureter and kidney so that the tumor could be treated very intensively with irradiation therapy. The pathologists still reported "fibrosis." We then went to the literature, and found the description of this particular disease.

About six or eight months later, the same patient came back. The mass had extended over to his left side, producing an obstruction, and we then followed Dr. Ormond's surgical recommendation, which is primarily to transplant the ureter intraperitoneally, as you can see in this postoperative film. Here, on pyelography, the ureter seems to be displaced laterally to a marked degree, but the obstruction has been done away with. It has been about nine years since that patient's last operation, and he is perfectly well.

The second patient was referred to me by Dr. Theilen. She had been treated over a period of several years for chronic urinary-tract infection, with secondary anemia and all the sequelae of chronic infection. Finally, she was sent here for further treatment of her chronic pyelonephritis. We found the typical changes bilaterally. We were able satisfactorily to transplant both ureters intraperitoneally, to cure the infection completely, and to achieve an altogether excellent result.

Now, in the meantime there has been a great deal of discussion in the literature regarding the treatment of these patients with steroids, and we tried them on the next of our cases. We did *not* obtain any regression of the lesion through the use of steroids, and that is the usual finding. The only exception has been one of two cases reported from one institution. The treatment for this condition, then, is a surgical one—to sidetrack the urine by transplanting the ureter intraperitoneally.

In the case that we have been discussing this afternoon, the patient was very sick, and diversion of the urinary stream was thought necessary. Apparently that procedure was carried out, in addition to transplanting the ureter. The question arises in my mind whether it wouldn't have been wiser simply to do a bilateral nephrostomy and get the patient into better shape before doing the extensive transplantation of the ureter.

So much, then, for the therapy. There has been some discussion of x-ray treatment of this chronic fibrosing lesion, but no evidence has been discovered that in itself it has halted the lesion. Dr. Ormond has raised a question as to what happens to the retroperitoneal lesion in patients who have been subjected to the surgery that he recommends—whether the urinary obstruction has been permanently relieved. For example, it would be interesting to reexplore our first patient to see what has happened to his lesion.

Dr. Begley: The definitive diagnosis of this condition, then, is arrived at only by the pathologist. The suggestive findings are hydronephrosis, hydroureter, extrinsic compression of the ureter and medial deviation of the ureter. These signs can be ascertained in patients only by means of pyelography.

Dr. Henry E. Hamilton, Internal Medicine: Dr. Layton, is the mucopolysaccharide content of this material similar to that found in pretibial myxedema?

Dr. Layton: No. I've looked at some of those pretibial myxedemas for Dr. Hamilton, but this appears to be more densely collagenous and not so basophilic and swollen. But I haven't done the definitive stains. My guess is that it probably is not the same.

Dr. Robert Hickey, Surgery: Perhaps Dr. Layton will answer a question for me. At a recent surgical meeting in Iowa City, Dr. Hertlizka, of Mason City, presented a series of patients whom he and his associates had encountered. The therapy that was carried out was very similar to the one that this patient received, but he made the point that in years gone by, several patients had been found to have retroperitoneal sarcomas, and after a decompressing operation for the urinary tract, they survived for unusually long periods of time. Can it be that some of the cases formerly diagnosed as fibrosarcomas in the retroperitoneal area were actually cases of this lesion that we have been discussing today?

Dr. Layton: There is nothing like time as a test for the diagnosis of malignancy. If a patient lives

for 35 years after having had a lesion diagnosed as fibrosarcoma, I would want to look at the old sections again.

Dr. Flocks: The following is a quotation from an editorial in LANCET: "Many a clinical reputation lies behind the peritoneum. In this hinterland of straggling mesenchyme with its vascular and nervous plexuses, its weird embryonic rests, its shadowy fascial boundaries, the clinician is often left with only his plan and his diagnostic first principles to aid him. Nonspecific periureteric fibrosis is likely to tax them both.

"At an early stage the symptoms usually point to a growing retroperitoneal lesion, but this limited diagnosis is rarely made. Retroperitoneal pain can be severe and persistent enough to drive the most phlegmatic patient to distraction, but when there are no abdominal findings, his complaint is likely to be received with incredulity."

Dr. Begley: I'd like to thank the discussants, Dr. Flocks and Mr. Dougherty, for their excellent discussions.

SUMMARY OF NECROPSY FINDINGS

Idiopathic retroperitoneal fibrosis (periureteritis plastica), postoperative
Nephrostomy, bilateral
Intraperitoneal ureteral transplantation, bilateral
Acute and chronic pyelonephritis, bilateral
Atherosclerosis, generalized
Aneurysm, abdominal aorta and common iliac arteries

STUDENTS' DIAGNOSES

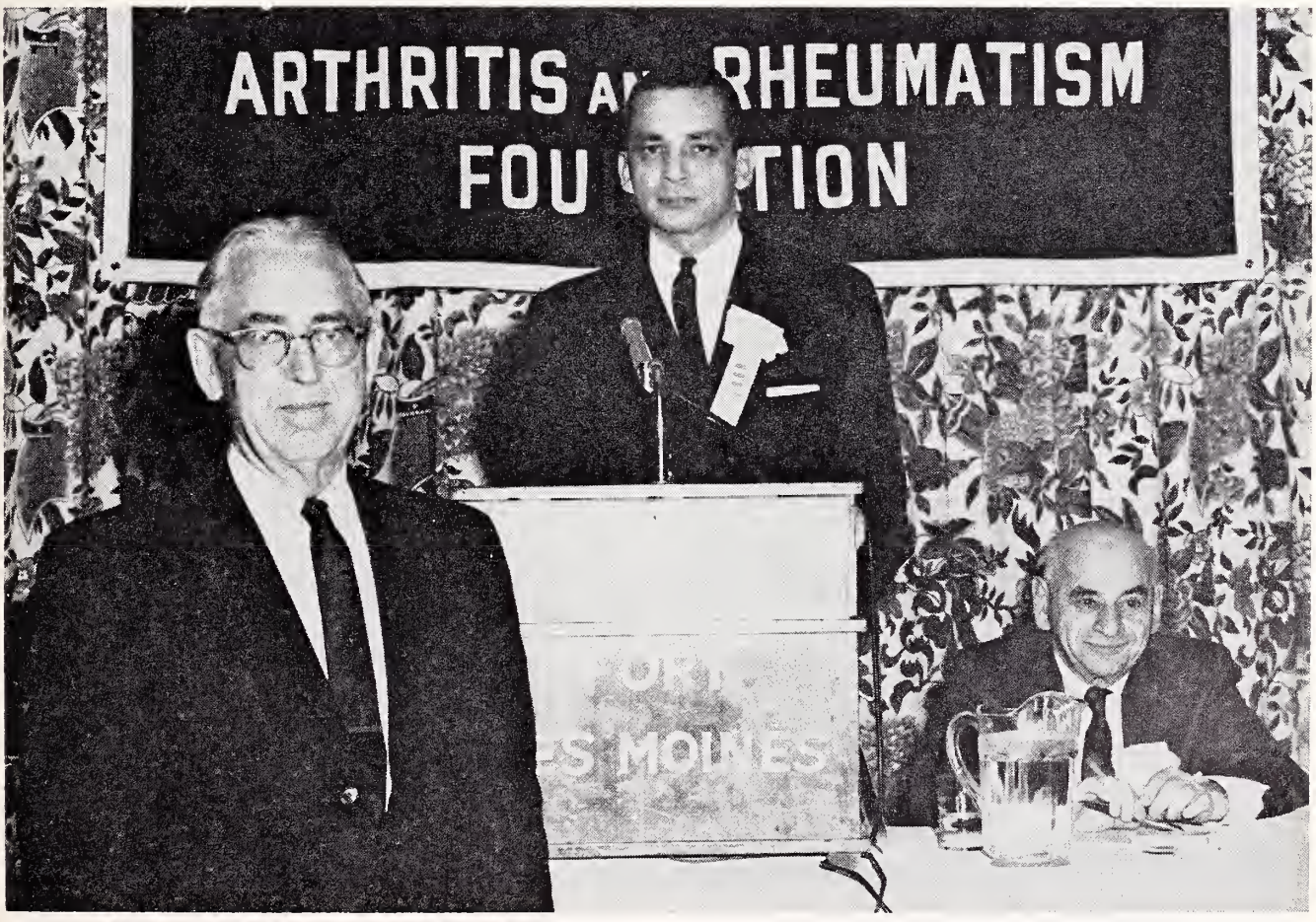
Primary retroperitoneal tumor
Hypothyroidism
Liver damage from amebiasis

DISCUSSANT'S DIAGNOSES

Periureteritis plastica
Chronic and acute pyelonephritis

CLINICAL DIAGNOSES

Periureteritis plastica
Abdominal aortic aneurysm.



Dr. Lee Forrest Hill, Des Moines pediatrician and vice president of the Iowa Medical Society, is shown (left) after receiving a distinguished service award on behalf of the Society. The award, presented by the Iowa Chapter Arthritis and Rheumatism Foundation at its annual meeting, January 30, in the Hotel Fort Des Moines, was given to the Society for the outstanding service Iowa physicians rendered to arthritis sufferers during 1961. Mr. C. William Schneider, the Chapter's executive director (center) made the presentation. Dr. William D. Paul, a professor of physical medicine and rehabilitation at SUI and the Chapter's medical chairman, is seated at the right.

Coming Meetings

IOWA

Apr. 6-8 **Third Midwestern Sectional Meeting of the Biological Photographic Association.** Downtowner Motor Inn, Des Moines

Apr. 13-14 **Pediatric Conference.** Raymond Blank Memorial Hospital, Des Moines

May 13-16 **Annual Meeting of the Iowa Medical Society.** Veterans Auditorium and Savery Hotel, Des Moines

CONTINENTAL U. S.

Apr. 1-6 **American College of Allergists Graduate Instructional Course and 18th Annual Congress.** Hotel Radisson, Minneapolis

Apr. 2-4 **American Radium Society.** Waldorf-Astoria Hotel, New York City

Apr. 2-4 **Clinical Reviews.** Mayo Clinic and Mayo Foundation, Rochester, Minnesota

Apr. 2-4 **Ophthalmology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 2-5 **American College of Obstetricians and Gynecologists.** Palmer House, Chicago

Apr. 2-6 **Clinical Congress of Abdominal Surgeons.** Chicago

Apr. 2-6 **Thirty-fifth Annual Spring Congress in Ophthalmology and Otolaryngology and Allied Specialties (Gill Memorial Eye, Ear and Throat Hospital).** Patrick Henry Hotel, Roanoke, Virginia

Apr. 4-6 **Otorhinolaryngology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 4-7 **U.S.P.H.S. Clinical Society.** Clinical Center, National Institutes of Health, Bethesda, Maryland

Apr. 5-7 **Water, Salts and Steroids.** University of California, San Francisco

Apr. 5-7 **Current Concepts of the Physiology of the Endocrines, Electrolytes and the Kidney.** (American College of Physicians in conjunction with the American Physiologic Society), University of Pennsylvania, Philadelphia

Apr. 5-7 **Clinical Symposium: Surgery of the Newborn.** Cook County Graduate School of Medicine, Chicago

Apr. 6-7 **Association of Clinical Scientists.** Sheraton-Chicago Hotel, Chicago

Apr. 6-8 **Annual Meeting of the American Society of Internal Medicine.** Benjamin Franklin Hotel, Philadelphia

Apr. 9-11 **Anesthesiology.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 9-12 **Aerospace Medical Association.** Atlantic City

Apr. 9-12 **Fourteenth Annual Scientific Assembly of the American Academy of General Practice.** Las Vegas Convention Center, Las Vegas

Apr. 9-13 **Forty-Third Annual Session of the American College of Physicians.** Convention Hall and Bellevue-Stratford Hotel, Philadelphia

Apr. 10-12 **Industrial Medical Association.** Pick-Congress Hotel, Chicago

Apr. 12-14 **Otolaryngology for General Physicians.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 12-14 **Highlights of Modern Ophthalmology.** Presbyterian Medical Center, San Francisco

April 12-14 **Psychiatry in Hospitals (The Catholic Hospital Association).** Conrad Hilton Hotel, Chicago

Apr. 13-14 **American Society for Artificial Internal Organs.** Hotel Claridge, Atlantic City, N. J.

Apr. 13-14 **Symposium on the Knee.** Harvard Medical School, Boston

Apr. 13-14 **Review of Advances in Surgery for G.P.'s.** Stanford University School of Medicine, Palo Alto, California

Apr. 13-15 **American Association for Cancer Research.** Chalfonte-Haddon Hall, Atlantic City, N. J.

Apr. 15-18 **California Medical Association Annual Session.** Fairmont Hotel, San Francisco

Apr. 15-21 **American Society for Experimental Pathology.** Atlantic City, N. J.

Apr. 16-18 **American Association for Thoracic Surgery.** Chase-Park Plaza Hotel, St. Louis

Apr. 16-18 **Internal Medicine for Internists.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 16-20 **American Society of Biological Chemists, Inc.** Atlantic City, N. J.

Apr. 17 **Essential Anesthetic Equipment.** University of Kansas School of Medicine, Kansas City, Kansas

Apr. 22-24 **Spring Session of the American Academy of Pediatrics.** Statler-Hilton Hotel, Los Angeles

Apr. 23-25 **Pan American Congress of Gastroenterology.** Hotel Roosevelt, New York City

Apr. 23-25 **Fifteenth Annual Spring Meeting, West Virginia Academy of Ophthalmology and Otolaryngology.** Greenbrier Hotel, White Sulphur Springs, West Virginia

Apr. 23-28 **American Academy of Neurology.** Statler-Hilton Hotel, New York City

April 23-May 4 **Surgical Review for the General Surgeon (U. S. Section of the International College of Surgeons).** Cook County Graduate School of Medicine, Chicago

April 23-May 4 **Diagnostic Radiology.** Cook County Graduate School of Medicine, Chicago

Apr. 24-25 **American Society for Gastrointestinal Endoscopy.** Roosevelt Hotel, New York City

Apr. 25-28 **American College Health Association.** Chicago

Apr. 25-28 **Sixth Postgraduate Course on Fractures and Other Trauma (Chicago Committee on Trauma of the American College of Surgeons).** John B. Murphy Memorial Auditorium, 50 East Erie Street, Chicago

Apr. 26-28 **General Surgery.** University of California, San Francisco

Apr. 26-28 **Surgery for Surgeons.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 26-28 **Clinical Symposium: The Problems of Aging.** Cook County Graduate School of Medicine, Chicago

Apr. 26-28 **American Gastroenterological Association.** Hotel Roosevelt, New York City

Apr. 28 **American Society for Clinical Nutrition.** Chalfonte Hotel, Atlantic City, N. J.

Apr. 29 **American Federation for Clinical Research.** Haddon Hall, Atlantic City, N. J.

Apr. 29-30 **American Otological Society, Inc.** Sheraton Dallas Hotel, Dallas

Apr. 29-May 2 **International Academy of Pathology and American Association of Pathologists and Bacteriologists.** Queen Elizabeth Hotel, Montreal, Canada

Apr. 30-May 1 **Society of Head and Neck Surgeons.** Queen Elizabeth Hotel, Montreal, Canada

Apr. 30-May 2 **Kansas Medical Society.** Town House Hotel, Kansas City, Kansas

Apr. 30-May 2 **Gynecology for General Physicians.** Center for Continuation Study, University of Minnesota, Minneapolis

Apr. 30-May 2 **American Academy of Pediatrics** (Spring Meeting). Statler-Hilton, New York City

Apr. 30-May 3 **Nebraska State Medical Association.** Hotel Cornhusker, Lincoln, Nebraska

Apr. 30-May 3 **American Proctologic Society.** Deauville Hotel, Miami Beach

April 30-May 11 **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

May 1-2 **American Broncho-Esophagological Association.** Sheraton-Dallas Hotel, Dallas

May 1-3 **American Laryngological, Rhinological and Otological Society, Inc.** Sheraton-Dallas Hotel, Dallas

May 1-5 **American Association on Mental Deficiency.** Statler Hotel, New York City

May 3-5 **American Association for the History of Medicine, Inc.** Ambassador Hotel, Los Angeles

May 3-5 **American Association for Cleft Palate Rehabilitation.** Netherland Hilton Hotel, Cincinnati

May 4-5 **American Laryngological Association.** Sheraton-Dallas Hotel, Dallas

May 4-6 **Society of Biological Psychiatry.** Royal York Hotel, Toronto, Canada

May 4-7 **American Psychoanalytic Association.** Royal York Hotel, Toronto, Canada

May 5-9 **108th Annual Meeting of the North Carolina Medical Society.** William Neal Reynolds Coliseum (State College Campus). Sir Walter Raleigh Hotel, Raleigh, N. C.

May 6-10 **American Society for Microbiology.** Muehlebach Hotel, Kansas City, Missouri

May 6-10	**American Association of Plastic Surgeons.** Hotel Del Coronado, Coronado, California
May 7-11	**American Psychiatric Association.** Royal York Hotel, Toronto, Canada
May 7-11	**General Surgery.** Cook County Graduate School of Medicine, Chicago
May 7-11	**Advances in Medicine.** Cook County Graduate School of Medicine, Chicago
May 8-10	**Socicty for Pediatric Research.** Traymore Hotel, Atlantic City
May 9-11	**American Association of Genito-Urinary Surgeons.** Skytop Lodge, Skytop, Pennsylvania
May 9-12	**American Thyroid Association.** Roosevelt Hotel, New Orleans
May 9-13	**Student American Medical Association.** Mayflower Hotel, Washington, D. C.
May 10-11	**American Pediatric Society.** Traymore Hotel, Atlantic City
May 10-12	**Ear, Nose and Throat.** University of California, San Francisco
May 13-17	**Annual Meeting of the Illinois Statc Medical Society.** Hotel Sherman, Chicago
May 14-16	**Fundamental and Applied Aspects of Cardiology (American College of Physicians).** Wayne State University College of Medicine, Detroit
May 14-17	**American Urological Association.** Bellevue-Stratford Hotel, Philadelphia
May 14-17	**Surgcry.** University of Kansas School of Medicine, Kansas City, Kansas
May 14-18	**American Nurses' Association.** Detroit
May 14-18	**Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago
May 14-18	**Blood Vesscl Surgery.** Cook County Graduate School of Medicine, Chicago
May 15	**Rehabilitation in the Older Patient.** University of Kansas School of Medicine, Kansas City, Kansas
May 16-19	**Expanded Surgery of the Nasal Septum and Closely Related Structures (American Rhinologic Society).** St. Michael Hospital, Milwaukee
May 17-18	**Proctology.** University of California, San Francisco
May 20-23	**57th Annual Meeting, American Thoracic Society.** Deauville and Carillon Hotels, Miami Beach
May 20-25	**National Tuberculosis Association.** Deauville Hotel, Miami Beach
May 21-23	**109th Annual Meeting of the Minnesota State Medical Association.** Hotel Leamington and the Minneapolis Auditorium, Minneapolis
May 21-24	**Catholic Hospital Association Convention.** Kiel Auditorium, St. Louis
May 21-25	**The Neurology of Diseases of Internal Medicine (American College of Physicians).** Harvard Medical School, Boston
May 21-25	**General Practice Review.** Cook County Graduate School of Medicine, Chicago
May 21-25	**Breast and Thyroid Surgery.** Cook County Graduate School of Medicine, Chicago
May 24-26	**Genetics.** University of California, San Francisco
May 26	**Inhalation Therapy.** Stanford University School of Medicine, Palo Alto, California
May 26-30	**American Society of Maxillofacial Surgeons.** Montreal, Canada
May 28-30	**Tenth Annual Western Cardiac Conference.** University of Colorado Medical Center, Denver
May 28-30	**Amcrican Ophthalmological Society.** The Homestead, Hot Springs, Virginia
May 29-June 2	**American College of Cardiology.** Denver Hilton Hotel, Denver
May 31-June 2	**American Gynecological Society (Members and Invited Guests).** The Homestead, Hot Springs, Virginia

ABROAD

Apr. 8-29	**Clinical Postgraduate Program in Japan and Hong Kong (U.C.L.A.).** Contact: Thomas H. Sternberg, M.D., Asst. Dean, Department of Continuing Education in Medicine and Health Sciences, U.C.L.A. Medical Center, Los Angeles 24
Apr. 15-18	**Bahamas Medical Conference,** Nassau. Contact: Mr. Irwin N. Wechsler, Executive Director, P. O. Box 1454, Nassau, Bahamas
April 22-29	**Asian Conference of Experts on Student Health.** Peradeniya, Ceylon. Write: World University Service, 13 rue Calvin, Geneva, Switzerland
May	**World Health Organization,** Palais de Nations, Geneva, Switzerland. Write: Secretary-General, World Health Organization, Palais de Nations, Geneva
May-June	**European Surgical Clinics Tour (International College of Surgeons).** England, The Netherlands, Germany, Italy, France, Switzerland. For Information Write: Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10
May 3-6	**106th Annual Meeting of the Hawaii Medical Association,** Honolulu.
May 4-6	**International Society of Ski Traumatology and Winter Sports Medicine.** Obergurgl, Tyrol, Austria. Write: Professor Dr. Wolfgang Baumgartner, Chirurg. University Klinik, Innsbruck, Austria
May 13-19	**World Congress of Gastroenterology,** Munich, Germany. Write: Medizinische Universitatsklinik, Krankenhausstrasse 12, Erlangen, Germany
May 14-18	**International Congress on Hormonal Steroids,** Milan, Italy. Professor L. Martini, Instituto de Farmacologia é Terapia, 21 Via A. del Sarto, Milan
May 15-19	**Congress of the European Federation (International College of Surgeons).** Amsterdam, The Netherlands
May 21-July 9	**Medical Centers of Europe (University of Southern California).** Tuition: Part A. London, Stockholm, Copenhagen and Paris (May 21-June 15) $250; Part B. Italy (June 16-30) $150; Part C. Greece (June 30-July 9) $75. For information write: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Ave., Los Angeles 33
May 26-30	**International Congress for Hygiene and Preventive Medicine.** Vienna, Austria. Write: Med.-Rat Dr. Ernst Musil, Mariahilferstrasse 177, Vienna 15
May 27-31	**American Orthopaedic Association (Members).** Castle Harbor Hotel, Bermuda
July 1-4	**International Conference on Oral Surgery.** Royal College, London. Write: D. C. Trexler, Executive Secretary, American Society of Oral Surgeons, 840 North Lake Shore Drive, Chicago 11
July 8-12	**International Congress of Psychosomatic Medicine and Childbirth.** Paris. Contact: Dr. L. Chertok, 22 rue Legendre, Paris 17, France
June 16-21	**International Symposium on Enzymic Activity in the Central Nervous System,** Goteborg, Sweden. Write: Dr. A. Lowenthal, Institut Bunge, 59 rue Philippe Williot, Berchem-Antwerp, Belgium
July 30-Aug. 13	**Fifth Annual Refresher Course (University of Southern California).** Royal Hawaiian Hotel, Honolulu, and on *S. S. Matsonia.* Address: Phil R. Manning, M.D., Associate Dean Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Avenue, Los Angeles 33
Aug. 8-15	**International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York
Sept. 5-8	**International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany
Sept.	**International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest
Sept.	**Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London
Oct. 7-13	**World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.
Oct.	**American Society of Plastic and Reconstructive Surgery,** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadhent, M.D., Secretary, 508 East South Temple, Salt Lake City
Nov. 11-16	**World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19
Dec.	**International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines
Feb. 20-24, 1963	**Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Doctor, How Is Your Biopsy Technic?

In an era of remarkable progress in the field of surgery, it is surprising to find that careful attention is not always given to the technics of biopsy.

The problem has been emphasized by Hardy, Griffin and Rodriguez in their BIOPSY MANUAL:* "Although the taking of the biopsy is commonly considered a minor procedure, which it frequently is, the importance of this step far transcends its magnitude as an operative procedure, for upon the accuracy of the biopsy may depend all subsequent management and even the patient's life. Yet despite the acknowledged gravity of a dependable biopsy in the diagnosis of many serious diseases, this procedure is all too often executed in such a manner as to afford disappointing if not tragic results."

The following are some of the phenomena that occasionally impede the pathologist in making his evaluations:

The topper specimen—the inflammatory crust which a timid operator has removed from a cutaneous lesion, and on which he fully expects to be given a forthright pathologic diagnosis.

The marginal biopsy—a specimen that is all margin sans lesion.

The miniature biopsy—a fragile sliver of tissue which has been obtained from a large lesion by an operator who expects to have both frozen and paraffin sections prepared from it.

The crushed lesion—a biopsy that has been damaged by a clamp placed directly across the very area to be examined.

The slashed specimen—a small piece of tissue in which the surgeon has made various deep cuts in order to satisfy his curiosity. He has thus distorted the lesion, but he still expects the pathologist to use it in evaluating the adequacy of the excision.

The wayward malignant melanoma—an unrecognized malignant melanoma which has been put into a container along with several benign pigmented skin lesions from various parts of the body, none identified as to specific source.

Scrambled curettings—thoroughly shredded endometrium, the result of excessive irregular or rotary curettage.

The naked cone—a cervical cone from which practically all of the epithelium has been scraped away during excision, despite the fact that the purpose of the operative procedure was to obtain that epithelium for examination.

The lost biopsy—a biopsy which has been left on a sponge to be discarded by a complacent nurse who has carefully safeguarded the appendix for submission to the pathologist.

It may be stated categorically that the accuracy of the pathologic diagnosis will not exceed the adequacy of the biopsy. It thus would be well for every biopsy surgeon, be he generalist or specialist, to become informed on the problems involved in handling and processing specimens so that they will yield satisfactory mounted microscopic sections amenable to diagnosis. He needs only to envision himself as the pathologist receiving a specimen in order to recognize what needs to be done as each biopsy procedure is planned.

Such a well oriented operator will:

Never fail to obtain a specimen of adequate depth.

Never fail to sample a lesion adequately (to the extent permitted by good surgical judgment).

Never crush, distort or otherwise damage a lymph node.

Never place a clamp on an area that is to be studied microscopically.

Never rub away with a sponge or scrape away with a knife or place a clamp upon the epithelium of a cervical cone.

Never distort a lesion after excision by cutting across it through an area from which the pathologist will need to take a block for processing.

Always insist that biopsy specimens be placed in clearly identified containers immediately after removal.

Always give the pathologist enough information to enable him to orient the specimen properly.

Always regard a request for examination of a biopsy as a request for consultation, and provide his consultant with information on the source of the lesion, the age of the patient, and such clinical and operative findings as he would want if he were the pathologist.

If the pathologist is to be a consultant, rather than a super-technician, he must make contributions to accurate biopsy diagnosis transcending the procedure of peering into a microscope. He should maintain close communication with the biopsy surgeon. On occasion, he should see the patient prior to operation. By that means, he will have knowledge of the diagnostic problems involved in the particular case, and will have an opportunity to suggest what specimens ought to be taken. He should not fail to inform a surgeon when he is dissatisfied with a specimen, yet at the same time he must fully understand the exigencies that sometimes make the obtaining of a biopsy exceptionally difficult.

* Hardy, J. D., Griffin, J. C., Jr., and Rodriguez, J. A.: BIOPSY MANUAL. Philadelphia, W. B. Saunders Co., 1959.

The pathologist should institute careful control measures in his histology laboratory, and should meet the challenge posed by the miniature biopsy whenever necessary. Almost never should he report that a specimen has been lost while being processed, as a result of its having been too small.

The Case of the Misused Catheter

Not too long ago, an elderly patient came into our office complaining of severe burning, frequency and difficulty in urination. He had recently attended a clinic in the Midwest for a "check-up." During the process of examination, the physicians there had learned that he had been getting up at night two times, and had noticed a little slowing of his urinary stream. They therefore sent him to have a residual urine check.

Having completed his check-up, he was dismissed and sent home with the information that he had an early prostate that someday might have to be removed. By the time he got back to Des Moines, he was in rather serious straits. His urine was loaded with pus, and it was only with considerable difficulty that we were able to clean up his urine with antibiotics. Fortunately, he was able to get straightened out without further catheter drainage, and an operation was not necessary. These difficulties could all have been avoided if he had not been checked for residual.

This has happened to my own patients, as it has to many others, and I am sure that it will happen again, since there are many times when it is necessary to know the extent of a patient's residual urine, and catheterization becomes necessary. Yet, this case points up the question of how often is it really necessary to catheterize the early prostate patient for residual urine.

In recent years, I believe, the average practicing urologist has been catheterizing patients with decreasing frequency, choosing rather to use other means for determining whether or not his patients require further investigation of the prostate. In nearly all instances there is a need for a survey of the upper urinary tract by intravenous urography, and if he simply has the patient void and then obtains a post-voiding film, he gets a pretty good idea of how much residual urine the patient has. This is especially true if the patient's urine is negative to begin with. There is no use of running the risk of infecting him simply by placing a catheter, which even under the most sterile technic can still introduce bacteria into the bladder. If the patient has little, if any, residual, the trauma of catheterization sets up the possibility of recurrent cystitis. This condition can be extremely uncomfortable, and frequently the patient must have a catheter placed for further drainage in order to get him over his dilemma. Many times, the operation on the prostate is hastened by this unfortunate occurrence.

The general surgeon is also at fault. It is very easy to order an indwelling catheter for a patient who is having any trouble at all in voiding after an abdominal operation, and in some circumstances it has become a routine procedure to order the catheter without even giving the patient a trial at voiding without one. I think this is a mistake. Every patient should be given a chance to void, and perhaps some of the "old fashioned" stimuli such as sitting on the edge of the bed, hot water, etc. should be used to help him. Catheterization should be a last resort. Of course, a great deal of extra work is involved for everyone concerned, since it is so much easier to put in a Foley catheter. Furthermore, catheterization provides assurance that the patient's bladder is not going to become distended. But catheterization often introduces infection, and we have seen innumerable patients who have continued having bladder trouble following Foley catheter drainage, in spite of antibiotics.

Too often, the catheterization is carried out by someone whose sterile technic leaves considerable to be desired. Not having any knowledge concerning the anatomy of the urethra, some of these people can do a great deal more harm than good as they attempt to get a catheter into someone whose urethra does not accept a catheter easily.

In spite of all the potent antibiotics that we have today, we know that we are developing more and more resistant strains of bacteria, and that we are asking for trouble each time we introduce a new strain of microorganism into anyone's bladder by means of a catheter.

The very act of catheterization can be a most traumatic one. Should the patient have a large, vascular prostate, a stricture or an irregularity in the course of his urethra, the passage of a catheter with too much force or from a poor angle can result in long-standing and almost irreparable damage to the urethra itself. If and when the patient has a prostatectomy, the resultant stricture formation or false passage can give the urologist no end of trouble.

If it is absolutely necessary to introduce a catheter, one should not put it in and take it out more than once. It is preferable to leave it in place until such a time as the patient is ambulatory or until the physician feels that he can void under his own power.

In diagnosing prostatism, catheterization for residual urine is a highly unnecessary procedure. The same conclusions can be arrived at by other means that are far less damaging to the patient's health. This is especially true in early prostate cases, where there is considerable doubt in the surgeon's mind as to whether or not immediate surgery is indicated. Certainly the surgeon shouldn't want to force the issue by producing trauma or a serious infection that will require an operation promptly.

Rare Diseases

Primary carcinoma of the Fallopian tube is a rare disease. Only 14 cases were seen in the Gynecological Clinic of the Johns Hopkins Hospital during a 50-year period. Congenital absence of the gallbladder, in association with normal hepatic and common ducts, is a rare anomaly. Gross states that approximately 38 cases have been reported. Alveolar cell carcinoma of the lung is an uncommon disease, if not rare. Pathologic material at the Armed Forces Institute of Pathology included only 39 cases at the time of a report in 1953. Synovial sarcoma is a rare disease, only 60 cases having been seen by the Pack Medical Group during a 20-year period. Encephalitis due to cat-scratch fever is rare. Weber-Christian disease is comparatively rare. Retrograde intussusception of sigmoid and descending colon without demonstrable cause, in an adult, is extremely rare.

Although the foregoing list of rare diseases is not in itself overwhelming, it is of interest that an example of each of those conditions has been seen in recent years in the private practice of an individual physician here in Iowa. Similar lists could probably be compiled by all practicing physicians. The doctor who encountered the cases just enumerated, like many other doctors with comparable lists, is not likely to report any of them in the medical literature.

The point of all this is that most cases of rare diseases are "lost" in obscure and forgotten records, and the frequency of occurrence, let alone a comprehensive study of each of them, is probably inaccurately portrayed in published reports. Most studies emanate from large medical institutions and centers. Most cases, uncommon as well as common, are seen by individual private practitioners. Perhaps some advances in medical knowledge might result if a procedure were devised by which cases of rare diseases could be readily reported and catalogued. How could this be done, and by whom?

The American Medical Association is busy. Just to protect its scalp along the New Frontier is almost a full-time job. Somehow it seems an imposition to suggest that it undertake another duty. However, because of its journal, it is probably the only agency that can effectively and continuously reach all of the doctors in the country. This being true, it would be a logical organization to collect reports of rare diseases.

There would still remain the problem of stimulating reports from individual physicians. If each issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION were to contain a tear-out, postage-collect post card, addressed and providing a brief, simple questionnaire for the doctor to fill out in reporting his rare case, the response might be imposing. The questionnaire could be limited to the name of the rare disease, a means of identifying the patient, the reporting doctor's name and address, and the whereabouts (hospital or doctor's records) of the information on the case. No attempt need be made to define what constitutes a rare disease, and no details or verification need be asked for. Interested investigators could undertake verification and detailed study at some later time.

Surely if the reporting procedure were simple and required but a few moments of time, most doctors would be more than willing to play their part in the accumulation of case material and knowledge. The actual indexing and cataloguing could doubtless be done by some type of electronic machine, and the result would be an extensive reference file of rare diseases, potentially a very rich source of information.

Of course, this is just a wild idea, but sometimes wild ideas have merit. Sometimes not, too.

The Adjustment of Urinary pH Can Be Important

According to Brumfitt and Percival,* of St. Mary's Hospital, London, autopsy studies including microscopic examination of the kidneys have revealed evidence of chronic pyelonephritis in from 6 to 9 per cent of a large series of unselected patients, in many of whom the infection had not been recognized clinically. The British physicians suspect that the high incidence of chronic pyelonephritis can be attributed to a failure to treat urinary-tract infections adequately, with the result that in some patients the infections have persisted in sub-clinical forms and have ultimately progressed to chronic pyelonephritis. Numerous articles in the American literature have advanced the same thesis.

In streptomycin therapy for urinary-tract infections at St. Mary's Hospital, the failure to make urine alkaline was an important shortcoming. Brumfitt and Percival, indeed, regarded it as so important that they conducted a laboratory investigation and a controlled clinical trial to demonstrate the profound influence which the urinary pH may have on the effectiveness of some of the antibacterial agents.

In the laboratory study, numerous strains of Escherichia coli, Streptococcus faecalis, Pseudomonas pyocyanea, Proteus bacillus, Paracolon bacillus and Staphylococcus aureus were isolated from patients with urinary-tract infections, and sensitivity tests with various antibiotics were conducted on nutrient agar plates with three levels of pH: 5.5, 7.0 and 8.0. After the media had been

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* Brumfitt, W., and Percival, A.: Adjustment of urine pH in chemotherapy of urinary-tract infections: laboratory and clinical assessment. LANCET, 1:186-190, (Jan. 27), 1962.

inoculated, they were incubated at 37°C. for 18 hours, and the zone of inhibition about each antibiotic disc was measured. Identical studies were made with liquid media. This laboratory investigation revealed that proper adjustment of the pH augmented the actions of a number of antibacterial substances that are commonly used in the treatment of urinary-tract infections. Streptomycin was always more active under alkaline conditions. The tetracyclines were more effective in an acid medium. Chloramphenicol, it was found, was least active at pH 7.0, and there was enhancement when the pH was altered to either the acid or the alkaline side, the result depending upon the particular organism being studied. Nitrofurantoin was not significantly affected by a variation in the pH. The sulfonamides resembled chloramphenicol in that they showed variable responses to the pH adjustment.

The clinical study assessed the value of combined chemotherapy and urinary pH adjustment in 102 patients. An equal number of patients received chemotherapy alone. The presence of infection was evaluated on the basis of a laboratory examination of the urine, the criterion for infection being a bacterial count in excess of 100,000 organisms per milliliter of urine. If the leukocyte count was less than 50,000/ml., the bacterial count was repeated on another specimen before the patient was admitted to the study. Approximately three-fourths of the patients had had symptoms of primary urinary-tract infection for less than one week. Patients with organic obstruction or gross abnormality of the urinary tract were excluded, as were patients with neurologic disturbance of the bladder.

The 102 controls were given the antibiotic of choice in accordance with routine sensitivity testing. The study group of 102 patients were given the antibiotic of choice, and in addition an adjustment of the urinary pH in accordance with whatever pH effect had been found in the laboratory testing. The organisms isolated from patients in the two groups were very similar. There was a wider variety of organisms in hospital patients than in outpatients, and some of the hospital-acquired ones were resistant to a number of commonly used antibiotics.

The results of chemotherapy in combination with pH-adjustment were considerably better than those achieved with chemotherapy alone. The cure rate was 67 per cent in the control group, and 87 per cent in those who received the combined treatment. The antibiotics that had been most influenced by pH-adjustment *in vitro* proved also to be most influenced by it *in vivo*. Nitrofurantoin, which had been very little affected by pH variations in the laboratory, gave identical clinical results in the control and in the combined therapy groups. If the patients who were treated with nitrofurantoin are excluded from both groups, the success rate for the combined therapy group rises to 91 per cent, as compared with only 64 per cent of the patients who received the antimicrobial only.

An additional group of 136 patients with acute urinary-tract infections who had relapsed after four or five days of conventional chemotherapy were given a five-day course of antibiotic therapy after laboratory study and appropriate pH-adjustment. In this group of 136 patients, there were 110 successes (81 per cent) and 26 failures (19 per cent).

The adjustment of pH was accomplished by the administration of disodium hydrogen phosphate when alkalinization was required, and of sodium dihydrogen phosphate when acidification was needed. These chemicals were given orally in aqueous solution, in doses of 1 to 2 Gm. at six-hour intervals. Patients were instructed in the use of indicator paper, and adjusted their doses of the pH-adjusting solution accordingly.

From this study, it would appear that rather than depend upon chemotherapy alone in the treatment of urinary-tract infections, one should give careful attention to the influence of urine pH upon the effectiveness of therapy. Whether an acid or an alkaline urine will facilitate treatment should first be determined in the laboratory through an *in vitro* study of the influence of pH upon the antibiotic sensitivity of the infecting organism.

Annual University Issue

The editors of the JOURNAL wish to thank Dr. David Culp and the members of his committee at the S.U.I. College of Medicine for planning and assembling the scientific articles for this issue. Since, they secured considerably more material for us than could be published this month, we have found it necessary to postpone publication of some of it until the May number.

Dean Norman B. Nelson, dean of the College, Dr. John A. Gius, the director of postgraduate education, and all of the other members of the faculty are so consistently generous in sharing their scientific findings with the readers of the JOURNAL that there is rarely an issue that fails to contain at least one presentation in addition to our highly prized regular feature, the S.U.I. clinical pathologic conference report. We are sure that the entire membership of the Iowa Medical Society joins us in this expression of our appreciation.

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the Journal, 529-36th Street, Des Moines 12, Iowa.

President's Page

I urge all physicians to circle May 13-16 on their calendars, and to attend the 1962 Annual Meeting of the Iowa Medical Society on those days.

The Program Committee has worked diligently to develop a series of scientific presentations which will be of interest and value to all physicians.

As a new feature this year, in addition to the various specialty meetings, a series of Fireside Conferences on Cardiorespiratory Diseases will be held Monday evening.

Tuesday will be "fun night" for those of you who attend the Annual Banquet and Woman's Auxiliary Benefit Dance.

Details of the Annual Meeting appear on the following pages of this issue of the JOURNAL.

Plan now to attend!

President

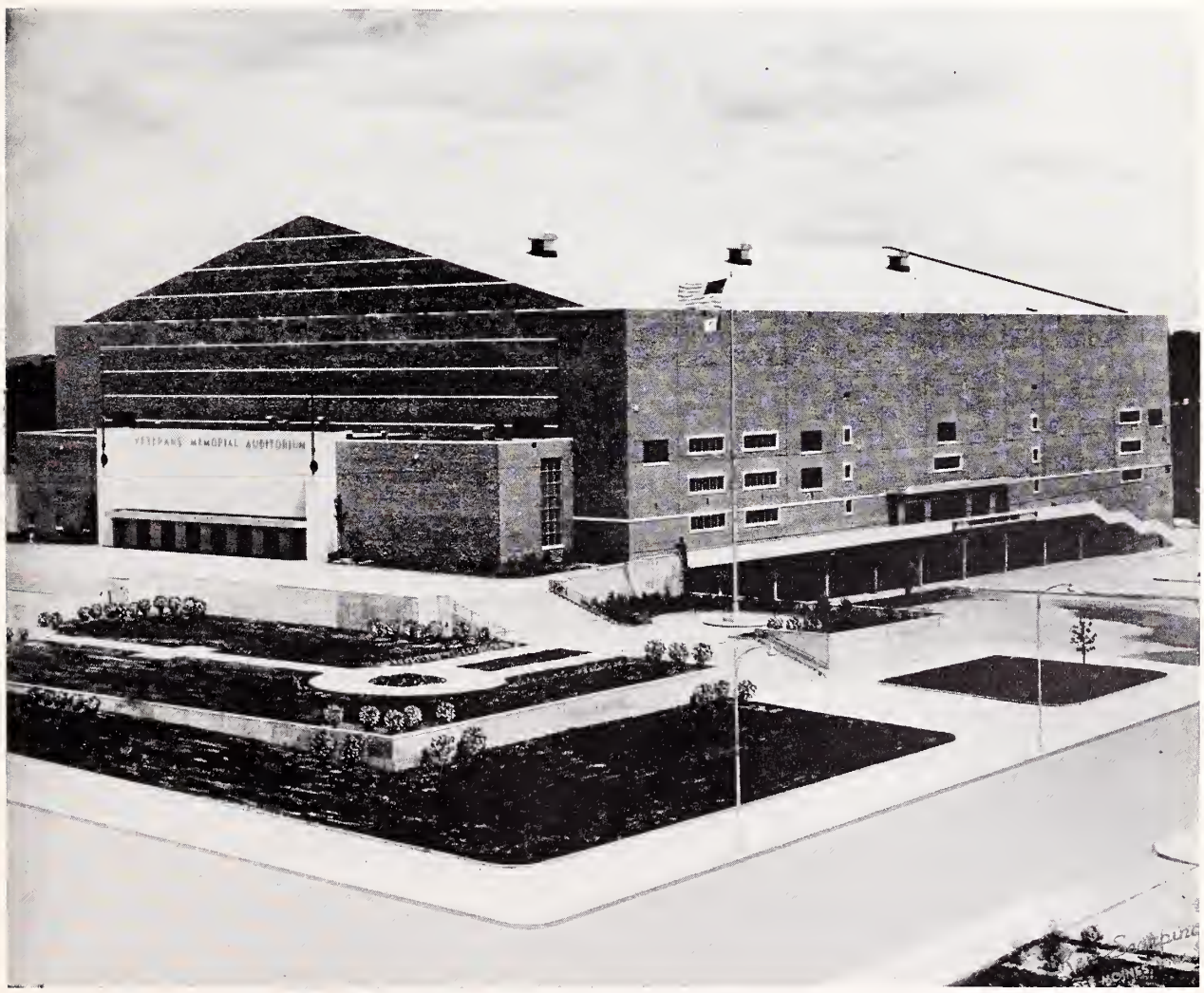
IOWA MEDICAL SOCIETY

Organized in 1850

1962 ANNUAL MEETING

May 13-16

Veterans Memorial Auditorium
Des Moines



Veterans Memorial Auditorium

OTTO N. GLESNE, M.D.

President

Iowa Medical Society

1961-1962

General Sessions

General Sessions Room, Exhibit Hall

Monday Morning, May 14

8:00 a.m. EXHIBITS

8:55 a.m. Invocation

Rev. John M. Ness, pastor, St. Olaf Lutheran Church, Fort Dodge

9:00 a.m. President's Address

Otto N. Glesne, M.D., Fort Dodge, president of the Iowa Medical Society

9:30 a.m. Raymond G. Bunge, M.D., Iowa City

"Sex Determination"

10:00 a.m. J. Nixon Briggs, M.D., Winnipeg, Manitoba

"Problems and Cooperation in Prepaid and Socialized Medicine"

10:30 a.m. RECESS TO VISIT EXHIBITS

11:15 a.m. Mr. James Brindle, Detroit, Michigan

"How Can Medicine and Labor Cooperate to Assure the Best Possible Medical Care for the American People in the Present and Future?"

11:45 a.m. Wendell G. Scott, M.D., St. Louis, Missouri

"Cerebral Vascular Malformations and the Importance of Their Detection by Cerebral Angiography" (The Arthur Erskine Memorial Lecture)

12:15 p.m. LUNCH

Monday Afternoon, May 14

2:00 p.m. Eugene S. Turrell, M.D., Milwaukee, Wisconsin

"Does Your Patient 'Need' a Psychiatrist?"

2:30 p.m. Neal S. Bricker, M.D., St. Louis, Missouri

"Fluid Balance in the Patient With Chronic Progressive Renal Disease"

3:00 p.m. RECESS TO VISIT EXHIBITS

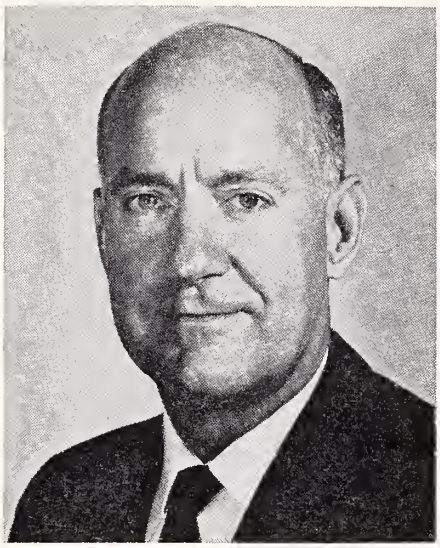
3:45 p.m. Russell S. Fisher, M.D., Baltimore, Maryland

"The Medical Examiner"

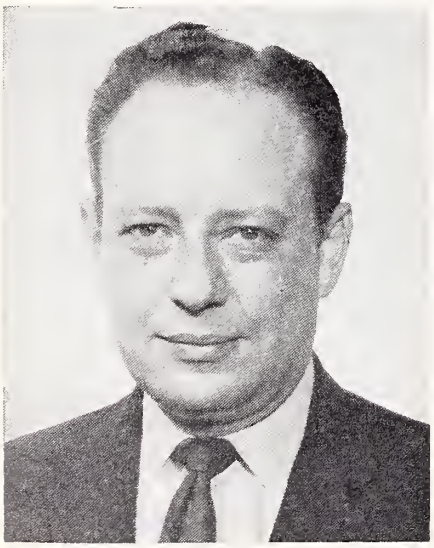
4:15 p.m. Tague C. Chisholm, M.D., Minneapolis, Minnesota

"Translation of Ivory-Tower Medicine Into the Practice of Present-Day Medicine"

The scientific program will be acceptable to the American Academy of General Practice for 8½ hours of Category II credit.



Edward R. Annis, M.D., of Miami, Florida (left), is chief of the Department of Surgery at Mercy Hospital, Miami, a member of the Board of Directors of Family Service, and of the Senior Citizens' Division of the Welfare Planning Council, the chairman of the Legislative Committee of the Florida State Medical Association, and a recipient of the Brotherhood Medal of the National Conference of Christians and Jews. **Kenneth B. Babcock, M.D., of Chicago, Illinois (center),** is director of the Joint Commission on Accreditation of Hospitals, a trustee of the Blue Cross Commission, a guest lecturer in hospital administration at Columbia, Chicago, Northwestern and Minnesota Universities, and a fellow of the American College of Surgeons. **John C. Beck, M.D., of Montreal (right),** is an associate professor of medicine at McGill University, a research fellow at the McGill University Clinic of the Royal Victoria Hospital, the chief of the Endocrine-Metabolic Unit at the same institution, a past-president of the Canadian Society for Clinical Investigation, and a Markle Scholar in the medical sciences.



Neal S. Bricker, M.D., of St. Louis, Missouri (left), is director of the Renal Division in the Department of Internal Medicine at Barnes and Wohl Hospitals, an assistant professor of medicine at the Washington University School of Medicine, an associate editor of the JOURNAL OF LABORATORY & CLINICAL MEDICINE, an established investigator for the American Heart Association, and a visiting investigator at the Institute of Biological Chemistry in Copenhagen, Denmark, 1961-1962. **J. Nixon Briggs, M.D., of Winnipeg, Manitoba (center),** is an assistant professor of pediatrics at the University of Manitoba, the provincial chairman of the Academy of Pediatrics, Manitoba Chapter, and president of Medical Executive Children's Hospital, Winnipeg. **Mr. James Brindle, of Detroit, Michigan (right),** is director of the Social Security Department of the United Automobile, Aircraft and Agricultural Implement Workers of America (UAW), a member of the Executive Committee of the Group Health Association of America, a member of the Advisory Committee of the National Health Survey, U.S.P.H.S., and a member of the Research and Development Advisory Committee of Michigan Hospital Service (Blue Cross).

General Sessions (Continued)

Tuesday Morning, May 15

8:00 a.m. EXHIBITS

9:00 a.m. Kenneth R. Cross, M.D., Iowa City

"Laboratory Personnel, Controls and Procedures for the Practitioner"

9:30 a.m. Col. Joseph D. Goldstein, MC, USA, Washington, D. C.

"Medical Aspects of Casualties in Nuclear Warfare"

10:00 a.m. Edwin J. DeCosta, M.D., Chicago, Illinois

"Office Gynecology, 1962"

10:30 a.m. RECESS TO VISIT EXHIBITS

11:15 a.m. Hon. Bourke B. Hickenlooper, U. S. Senator, Cedar Rapids

"Report on Medical Legislation From the Standpoint of a Legislator"

11:45 a.m. B. J. Kennedy, M.D., Minneapolis, Minnesota

"The Future of Cancer Chemotherapy"

12:15 p.m. LUNCH

Tuesday Afternoon, May 15

2:00 p.m. Eugene Kaplan, M.D., Baltimore, Maryland

"The Jaundice States in Children—Causes and Treatments"

2:30 p.m. Hubertus Strughold, M.D., San Antonio, Texas

"Space Medicine"

3:00 p.m. RECESS TO VISIT EXHIBITS

3:45 p.m. John C. Beck, M.D., Montreal, Quebec

"Adrenal Cortical Physiology—Its Clinical Implications"

4:15 p.m. Edward R. Annis, M.D., Miami, Flordia

"Current Legislative Proposals in the Field of Medical Care"

Wednesday Morning, May 16

General Sessions Room, Exhibit Hall

Exhibits, on the main floor of the Auditorium, will open at 8:00 a.m. The House of Delegates will be recessed at 10:00 a.m. to enable the delegates to visit the exhibits.

10:20 a.m. SPECIAL ADDRESS

Kenneth B. Babcock, M.D., Chicago, Illinois, director of the Joint Commission on Accreditation of Hospitals

11:30 a.m. REPORT OF THE HOUSE OF DELEGATES

INSTALLATION OF THE PRESIDENT OF THE SOCIETY

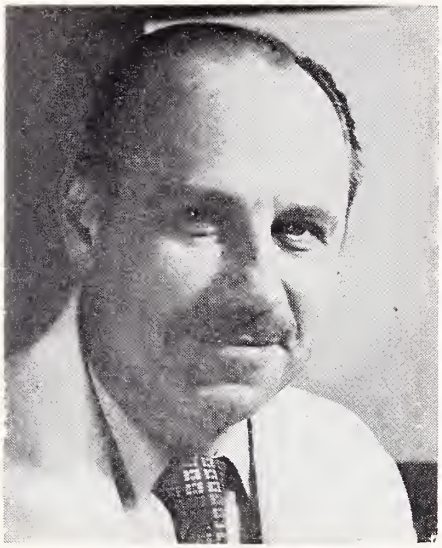
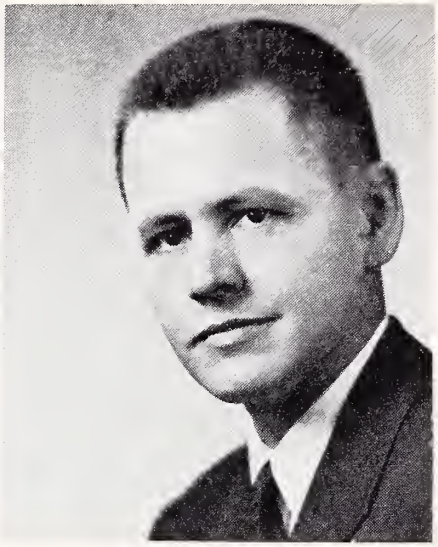
Meetings of the

HOUSE OF DELEGATES

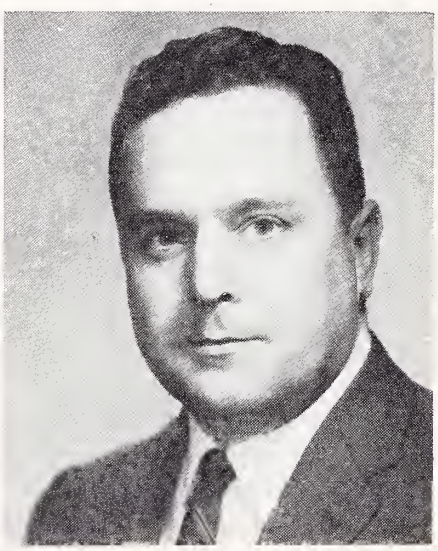
will be held

Sunday, May 13—10:00 a.m.
Wednesday, May 16—8:00 a.m.
Veterans Memorial Auditorium

All members of the IMS are encouraged to attend these meetings.

R. G. Bunge, M.D., Iowa City (left), is a professor of urology at the SUI College of Medicine and a diplomate of the American Board of Urology. **Tague C. Chisholm, M.D., Minneapolis (center),** is a clinical professor of surgery at the University of Minnesota Medical School and chief of the Pediatric Surgical Service at Minneapolis General Hospital. **Kenneth R. Cross, M.D., Iowa City (right),** is acting chief of the Laboratory Service, Veterans Administration Hospital, pathologist, Mercy Hospital, director of the School of Medical Technology at the VA and SUI Hospitals, chairman of the IMS Subcommittee on Exfoliative Cytology, a member of the Executive Committee of the Iowa Association of Pathologists, and a councilor of the American Society of Clinical Pathologists.



Edwin J. DeCosta, M.D., Chicago (left), is an associate professor of obstetrics and gynecology at Northwestern University, an attending gynecologist and obstetrician at Passavant Memorial Hospital, an attending gynecologist at Cook County Hospital, and a past-president of both the Central Association of Obstetricians and Gynecologists and the Chicago Gynecological Society. **Russell S. Fisher, M.D, Baltimore (center),** is chief medical examiner of the State of Maryland, a professor of forensic pathology at the University of Maryland Medical School, a past-president of the American Academy of Forensic Sciences, chairman of the Joint Committee of the Bar Association and Medical and Chirurgical Faculty of Maryland, and a member of the AMA-ABA Liaison Committee. **Col. Joseph D. Goldstein, MC, USA, Washington (right),** is chief of the Nuclear Energy Division of the U. S. Army Medical Research and Development Command, and consultant in nuclear medicine to the Office of the Surgeon General of the Army.

Special Meetings and Dinners

Sunday, May 13

AMERICAN MEDICAL WOMEN'S ASSOCIATION, IOWA BRANCH 19

The annual meeting of the American Medical Women's Association, Iowa Branch 19, will be held at the home of Dr. Jean Glissman, 2031 70th Street, Des Moines at 7:30 p.m. All Iowa medical women are invited to attend.

GOLF TOURNAMENT

The Annual Golf Tournament will be held in Des Moines at the Wakonda Club. Physicians may begin play at any time during the day, but the majority will start at 1 p.m. Dinner and awarding of prizes will follow. Reservations should be made with Dr. Harold J. McCoy, 212 Bankers Trust Building, Des Moines 9.

IOWA SOCIETY OF INTERNAL MEDICINE

East Room—Savery Hotel

Business Meeting and Social Hour—6:30 p.m.
Dinner—7:30 p.m.

Reservations: D. A. Glomset, M.D.
2932 Ingersoll Avenue, Des Moines

Monday, May 14

AMERICAN COLLEGE OF CHEST PHYSICIANS, IOWA MEDICAL SOCIETY

Veterans Memorial Auditorium

12:00 noon Luncheon

12:30 p.m. Panel Discussion
"Management of the Cardiopulmonary Cripple"

1:45 p.m. Business Meeting
Grand Ballroom—Hotel Savery

8:30 p.m. Fireside Conferences

(Reservation cards to be mailed to IMS members in advance of meeting.)

IOWA ACADEMY OF GENERAL PRACTICE

Des Moines Room—Hotel Savery
Cocktails—6 to 8 p.m.

All General Practitioners and their wives are invited to attend. Tickets will be sold for $1.00 per person.

IOWA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Wakonda Club

Social Hour and Dinner—6:30 p.m.

Reservations: C. C. Woodburn, Jr., M.D.
1421 Woodland Avenue, Des Moines

IOWA ACADEMY OF SURGERY

Wakonda Club

Business Meeting—5 p.m.
Social Hour—7 p.m.; Dinner—8 p.m.

Reservations: A. N. Smith, M.D.
1407 Woodland Avenue, Des Moines

Attend the
FIRESIDE CONFERENCES
presented jointly by the
AMERICAN COLLEGE OF CHEST PHYSICIANS
and the
IOWA MEDICAL SOCIETY

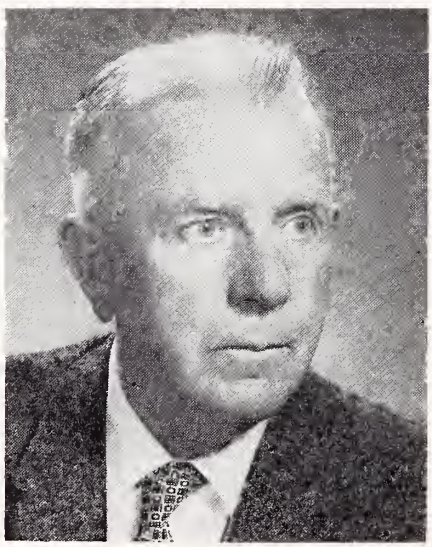
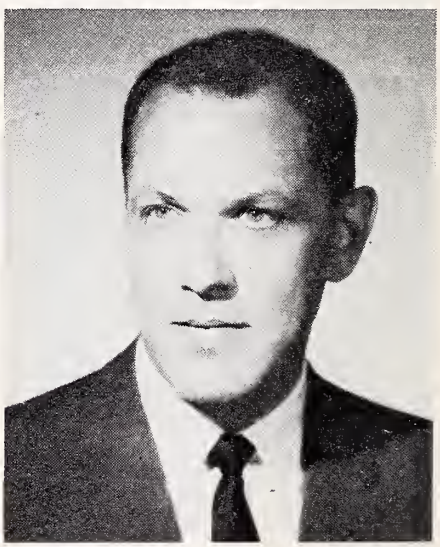
Monday, May 14—Grand Ballroom—Hotel Savery—8:30 p.m.

A panel of physicians will be seated at each of six tables to discuss and answer questions on the following subjects:

Management of Emphysema
Treatment of Coronary Disease
Modern Treatment of Tuberculosis
Treatment of Hypertension
Congenital and Rheumatic Heart Disease
Bronchogenic Carcinoma

Refreshments will be served with the compliments of the American College of Chest Physicians

The Honorable Bourke B. Hickenlooper, Cedar Rapids (left), is senior U. S. Senator from Iowa. **Eugene Kaplan, M.D., Baltimore (center),** is associate chief, Department of Pediatrics, Sinai Hospital of Baltimore, Inc., and associate professor of pediatrics, Johns Hopkins University Medical School. **B. J. Kennedy, M.D., Minneapolis (right),** is an associate professor of medicine at the University of Minnesota Medical Center.

Wendell G. Scott, M.D., St. Louis (left), is a professor of clinical radiology at the Washington University Medical School. **Hubertus Strughold, M.D., San Antonio (center),** is chief scientist, U.S.A.F. Aerospace Medical Division (AFSC), Brooks Air Force Base. **Eugene S. Turrell, M.D., Milwaukee (right),** is professor and chairman of psychiatry at Marquette University School of Medicine, director of psychiatric services at Milwaukee Sanitarium Foundation, and consultant at the Hospital for Mental Diseases of the Milwaukee County Institutions and Departments.

Special Meetings and Dinners (Continued)

IOWA ASSOCIATION OF PATHOLOGISTS AND IOWA SOCIETY OF MEDICAL TECHNOLOGISTS

Des Moines Muncipal Airport

Social Hour—6:30 p.m., Sky View Room

Dinner—7:45 p.m., Green Room

Guest Speaker: Russell S. Fisher, M.D.,
Baltimore, Maryland
Chief Medical Examiner, State of Maryland

Reservations: F. C. Coleman, M.D.
Mercy Hospital, Des Moines

IOWA OBSTETRICAL AND GYNECOLOGICAL SOCIETY

West Room—Des Moines Club

Social Hour—6:30 p.m.; Dinner—7:30 p.m.

Reservations: C. P. Goplerud, M.D.
University Hospitals, Iowa City

IOWA ORTHOPEDIC SOCIETY

South Room—Des Moines Club

Social Hour—6 p.m.; Dinner—7 p.m.

IOWA PSYCHIATRIC SOCIETY

Iowa Room—Savery Hotel

Business Meeting—5:30 p.m.

Social Hour—6:30 p.m.; Dinner—7:30 p.m.

Reservations: H. C. Merillat, M.D.
2801 Woodland Avenue, Des Moines

IOWA RADIOLOGICAL SOCIETY

Business Meeting—5 p.m., Room E, Auditorium

Colonial Room—Des Moines Club

Social Hour—6:30 p.m.; Dinner—7:30 p.m.

Guest Speaker: Wendell G. Scott, M.D.
St. Louis, Missouri

Reservations: Louis L. Maher, M.D.
1419 Woodland Avenue, Des Moines

IOWA SOCIETY OF ANESTHESIOLOGISTS

Parlors C-D, West Room—Hotel Savery

Social Hour—6 p.m.; Dinner—7 p.m.

Guest Speaker: William O. McQuiston, M.D.,
Peoria, Illinois

Reservations: T. A. Bond, M.D.
711 Equitable Building, Des Moines

PAST PRESIDENTS' DINNER

Parlors A-B—Hotel Savery

Dinner—7 p.m.

Tuesday, May 15

LEGISLATIVE CONTACT MEN

Des Moines Room—Hotel Savery

Breakfast—7:30 a.m.

PRESIDENT'S RECEPTION AND ANNUAL BANQUET

Hotel Savery

Reception, 6 p.m.—Grand Ballroom

Banquet, 7 p.m.—Des Moines and Terrace Rooms

BENEFIT DANCE

"Caduceus Capers"

Des Moines and Terrace Rooms—Hotel Savery
8:30 p.m.

Evan Morgan's Orchestra

Sponsored by the Woman's Auxiliary for the
Benefit of Its Health Educational Loan Fund

The House of Delegates

Open to all members

SPEAKER

C. V. Edwards, Sr., M.D.

First Meeting—Sunday
May 13, 10:00 a.m.

South Room, Veterans Memorial Auditorium

Roll Call

Approval of the Minutes of the Meeting held on April 26, 1961

Reports of Officers

Nominations

Reports of Committee Chairmen

Memorials and Communications

New Business

Second Meeting—Wednesday
May 16, 8:00 a.m.

General Sessions Room, Veterans Memorial Auditorium

Roll Call

Reading of Minutes

Election of Officers

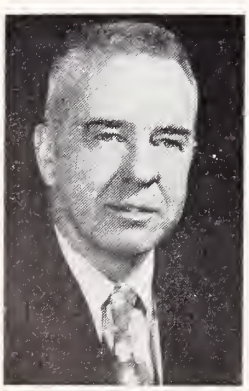
Reports of Committees

Unfinished Business

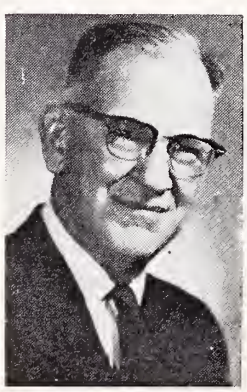
New Business

Adjournment

Program Committee



C. J. Baker, M.D.
Chairman



C. N. Hyatt, M.D.

R. C. Larimer, M.D.

V. W. Peterson, M.D.

V. L. Schlaser, M.D.

SCIENTIFIC EXHIBITS

State University of Iowa College of Medicine

Mental Retardation in Young Children—Robert B. Kugel, M.D., Child Development Clinic, Department of Pediatrics

Pathology of Child-Parent Relations—Richard L. Jenkins, M.D., Child Psychiatry Service, State Psychopathic Hospital

Agricultural Medicine—Institute of Agricultural Medicine

College of Medicine Administration—Miss Alice White, Dean's Office

Phrenico-Facial Anastomosis for Facial Paralysis—George Perret, M.D., Robert Hardy, M.D., Russell Meyers, M.D., F. Miles Skultety, M.D., Division of Neurosurgery, Department of Surgery

Techniques for Studying Speech Physiology—James C. Hardy, Ph.D., Kenneth L. Moll, Ph.D., Hughlett L. Morris, Ph.D., and Duane C. Spriestersbach, Ph.D., Department of Otolaryngology and Maxillofacial Surgery

Arthritis Avenue—Rheumatism Street—Physical Therapy Department, Department of Physcial Medicine and Rehabilitation, University Hospitals; and Iowa Chapter Arthritis and Rheumatism Foundation, State Headquarters, Des Moines.

Veterans Administration Center, Des Moines

Hemorrhaging Chronic Duodenal Ulcer: A New Look at an Old Problem—Louis T. Palumbo, M.D., and Wendell S. Sharpe, M.D., Surgical Service

General

Fresh Cervical Cytology by Interference Microscopy—Donald V. Hirst, M.D., Council Bluffs

A Demonstration of Digital Computer Interpretation of Electrocardiograms—John E. Gustafson, M.D., Des Moines

Comprehensive Rehabilitation—Younker Memorial Rehabilitation Center, Iowa Methodist Hospital

Emergency Medical Care—Committee on Emergency Medical Service, Iowa Medical Society

The American Cancer Society's Attack on Cancer of the Colon and Rectum—American Cancer Society, Iowa Division, Inc.

Epidemiology of Infectious Hepatitis—Polk County 1961—Des Moines-Polk County Health Department

Serving the Doctor and the Public—Polk County Medical Society

Iowa Chapter of the American Academy of General Practice

Iowa Association of Pathologists

Iowa Pharmaceutical Association

Laboratory Animals in Research—Brucellosis—Iowa Veterinary Medical Association

Iowa Association of Medical Assistants

Automation in the Laboratory—Iowa Society of Medical Technologists

American Society of X-Ray Technicians—Iowa Society of X-Ray Technicians

Dental Health Education—Iowa Dental Hygienists Association

Chemistry, Chromosomes and Congenital Anomalies—The National Foundation

Your Heart Association Serves the Physician—Iowa Heart Association

Tuberculin Skin Test Every Patient; Chest X-Ray Every Reactor—Iowa Thoracic Society

Aid to the Partially Seeing—Iowa Society for the Prevention of Blindness

Easter Seal Treatment Center—Polk County Society for Crippled Children and Adults

Parameters of Normal Speech Development—Des Moines Hearing and Speech Center

Multiple Sclerosis—"What Is It?"—Central Iowa Chapter, National Multiple Sclerosis Society

Myasthenia Gravis—Iowa Chapter, Myasthenia Gravis Foundation, Inc.

Human Betterment League of Iowa

Adoption and Related Services—Iowa Children's Home Society

Know Your Iowa Gems and Minerals—Des Moines Lapidary Society

Pinpointing Vocational Rehabilitation—Iowa State Department of Public Instruction, Division of Vocational Rehabilitation

Syphilis Is Where You Find It—Iowa State Department of Health, Division of Venereal Disease Control

Prevent Infectious Hepatitis—Iowa State Department of Health, Division of Health Education

Screening Children for Heart Disease With the Use of Recorded Heart Sounds—Iowa State Department of Health, Division of Gerontology, Heart and Chronic Diseases

Some Methods for Evaluating Hearing Acuity—Iowa State Department of Health, Committee on the Conservation of Hearing for the State of Iowa

Vital Statistics System of the United States—Iowa State Department of Health, Division of Vital Statistics

Nutrition Service Offers an Education Program—Iowa State Department of Health, Nutrition Service

TECHNICAL EXHIBITORS

Abbott Laboratories, North Chicago, Illinois
Ames Company, Inc., Elkhart, Indiana
Anderson Pharmaceuticals, Columbus, Ohio
Baker Laboratories, Inc., Cleveland, Ohio
Blue Cross-Blue Shield Plans, Des Moines-Sioux City
Breon Laboratories, Inc., New York, New York
Carnation Company, Los Angeles, California
CIBA Pharmaceutical Products, Inc., Summit, New Jersey
Cusack-Harmon Company, Sioux City, Iowa
DePuy Manufacturing Co., Inc., Warsaw, Indiana
Desitin Chemical Co., Inc., Providence, Rhode Island
Dictaphone Corporation, Des Moines, Iowa
Endo Laboratories, Inc., Richmond Hill, New York
Marshall Erdman and Associates, Inc., Madison, Wisconsin
Foot-so-Port Shoe Company, Waterloo, Iowa
Geigy Pharmaceuticals, Ardsley, New York
H. & J. Supply Company, Des Moines, Iowa
Holland-Rantos Company, Inc., New York, New York
Holmes, Prouty, Murphy & May, Des Moines, Iowa
King Merritt & Company, Inc., Des Moines, Iowa
Lazy M Shoe Stores, Des Moines, Iowa
Lederle Laboratories, Pearl River, New York
Eli Lilly and Company, Indianapolis, Indiana
J. B. Lippincott Company, Philadelphia, Pennsylvania
Loma Linda Food Company, Arlington, California
Marion Laboratories, Inc., Kansas City, Missouri
S. E. Massengill Company, Kansas City, Missouri
Mead Johnson Laboratories, Evansville, Indiana
Medco Products Company, Inc., Tulsa, Oklahoma
Medical Protective Company, Fort Wayne, Indiana
Merck, Sharp & Dohme, West Point, Pennsylvania
Merrill Lynch, Pierce, Fenner & Smith, Inc., Des Moines, Iowa
Milex Professional Specialties, Peoria, Illinois
Mutual Benefit Life Insurance Company, Des Moines, Iowa
National Drug Company, Philadelphia, Pennsylvania
Ortho Pharmaceutical Corporation, Raritan, New Jersey
Parke, Davis & Company, Detroit, Michigan
Pepsi-Cola General Bottlers, Inc., Des Moines, Iowa
Pfizer Laboratories, New York, New York
Pharmich Laboratories, Cedar Rapids, Iowa
Physicians and Hospitals Supply Company, Minneapolis, Minnesota
Physicians & Surgeons Underwriters Corporation, Minneapolis, Minnesota
Picker X-Ray, Midwest, Inc., Omaha, Nebraska
Plough Laboratories, Inc., Memphis, Tennessee
Riker Laboratories, Inc., Northridge, California
A. H. Robins Company, Inc., Richmond, Virginia
Robinson Wholesale Company, Des Moines, Iowa
Roche Laboratories, Nutley, New Jersey
J. B. Roerig and Company, New York, New York
William H. Rorer, Inc., Philadelphia, Pennsylvania
Ross Laboratories, Columbus, Ohio
Ryter Corporation, Milwaukee, Wisconsin
Sandoz Pharmaceuticals, Hanover, New Jersey
W. B. Saunders Company, Philadelphia, Pennsylvania
Schering Corporation, Union, New Jersey
G. D. Searle & Company, Chicago, Illinois
Smith, Kline & French Laboratories, Philadelphia, Pennsylvania
E. R. Squibb & Sons, New York, New York
Standard Medical & Surgical Company, Des Moines, Iowa
Thermo-Fax Dealers of Iowa, Des Moines, Iowa
Ulmer Pharmacal Company, Minneapolis, Minnesota
Upjohn Company, Kalamazoo, Michigan
U. S. Vitamin & Pharmaceutical Corporation, New York, New York
Warner-Chilcott Laboratories, Morris Plains, New Jersey
Warren-Teed Products Company, Columbus, Ohio
Westwood Pharmaceuticals, Buffalo, New York
Winthrop Laboratories, New York, New York

ATTENTION ALL ARTISTS!

You are invited to display your original art and sculpture work at an

ART EXHIBIT

sponsored by the Woman's Auxiliary. All IMS members and their wives are encouraged to participate.

Entries will be received at Veterans Memorial Auditorium on

Sunday, May 13—1:30 to 4:30 p.m.

Awards will be made in four general categories: oils and watercolors; sculpture; drawing; and graphic art.

For entry blanks and specific information, write to:

Mrs. F. M. Burgeson, Exhibit Chairman
1166 Chatauqua Parkway, Des Moines, Iowa

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

CURRENT THERAPY—1962, ed. by *Howard F. Conn*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $12.50).

THE MONTEGGIA LESION, by *Jose Luis Bado*, M.D., tr. by *Ignacio V. Ponseti*, M.D. (Springfield, Illinois, Charles C Thomas, 1962. $6.75).

THE DOCTORS' DILEMMAS, by *Louis Lasagna*, M.D. (New York, Harper & Brothers, 1962. $4.95).

MODERN CONCEPTS OF HOSPITAL ADMINISTRATION, ed. by *Joseph Karlton Owen*, Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $16.00).

GENERAL PATHOLOGY, THIRD EDITION, ed. by *Sir Howard Florey*. (Philadelphia, W. B. Saunders Company, 1962. $22.00).

ERRANT WAYS OF HUMAN SOCIETY, by *Julius Bauer*, M.D. (New York, Vantage Press, Inc., 1962. $3.00).

NEW AND NONOFFICIAL DRUGS, 1962, evaluated by the AMA Council on Drugs. (Philadelphia, J. B. Lippincott Company, 1962. $4.00).

SURGERY OF THE AMBULATORY CHILD, by *S. Frank Redo*, M.D. (New York, Appleton-Century-Crofts, Inc., 1961. $8.50).

PRACTICAL MANAGEMENT OF THE OBESE PATIENT, by *Frank L. Bigsby*, M.D., and *Cayetano Muniz*, M.D. (New York, Intercontinental Medical Book Corporation, 1962. $4.00).

BOOK REVIEWS

TEXTBOOK OF ENDOCRINOLOGY, THIRD EDITION, by *Robert H. Williams*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $21.00).

Periodically, in the busy medical-political-community-family life that the physician leads, he realizes that the pioneers in one or another of the fields of medical knowledge have far outdistanced him—have indeed disappeared over the horizon. Then, if he is conscientious, he seeks out a recent monograph on the particular subject in an effort to catch up. This book is really an edited collection of such monographs, but it provides an added service. It simultaneously summarizes the established facts and also reviews the currently accepted theories concerning those of our internal organs known collectively as the endocrine glands. It is an exceptionally well done piece of work.

Knowledge concerning the pathologic physiology of the various endocrine glands has been enormously expanded within the past six or seven years. Indeed, this book makes it clear that the time is rapidly approaching when we shall talk, not of the relatively gross pathologic physiology, but rather of the pathologic molecular chemistry of a particular abnormality. A decided tendency is also developing to refer etiologic concepts back to original specific genetic defects. The greatest strides, in the recent past, have been taken in clarifying the etiologic and developmental aspects of endocrine disturbances, but one has the feeling that similarly rapid advances will soon occur in the therapeutic area.

The only annoying thing about this book is the all too frequent use of capital-letter abbreviations. The authors seem to forget that they are not writing for the benefit of their fellow academicians, but are attempting to produce a reference book that the practitioner will find readily readable. Furthermore, the code does not follow a consistent pattern. Sometimes the successive capital letters stand for separate words, and at other times they refer to successive syllables within a single word. I wonder how many internists can translate the statement that TRC is useful in evaluating the EHF, EPS and TTH blood levels. It is true that each term is written out in full when it is first mentioned, but that doesn't help one much when he has been referred, by the Index, to the middle of a chapter and is confronted with an unintelligible alphabet soup.

This is not to say that this book fails to provide very practical diagnostic and therapeutic help, for it does. Therefore, I believe it deserves a place on the ready reference book shelf of every practicing physician.—*L. J. Kirkham*, M.D.

TRIAL OF MEDICAL MALPRACTICE CASES, by *David W. Louisell* and *Harold Williams*, M.D. (Albany, Matthew Bender & Company, 1960. $25.00).

It is a peculiar characteristic of human affairs that great prestige, success or power are very often accompanied by pain, uncertainty or loss, in an amount almost equal, if such things could be measured, to the pinnacles achieved. Emerson's law of compensation is no respecter of persons or institutions.

So it is not surprising that the profession of medicine, at the time of its greatest accomplishment, with promise of much more to come, should be profoundly troubled and sorely beset on several fronts. Doctors are worried about "socialized medicine," about medical education, about rising costs, about taxes. And if these were not enough, there looms always the spectre of a suit for medical malpractice.

Now it has been the common experience of both medicine and the law to be ridiculed and belittled; perhaps this is because members of the two professions deal with such vital human problems as to presume to play the part of demigods—and for pay. In any event, if the lawyer winces at Daumier's cartoons, the doctor has his copy of MAD MAGAZINE with its cartoon "Great Moments in Medicine—Presenting the Bill." Such caricatures are the price we pay for the function we are bold enough to perform.

The threat of an action for medical malpractice is more immediate and pressing. It says to the doctor:

"You have fallen below the standards of your profession; you have injured another; you must pay." In a way it puts him, in his own eyes, in the position of the careless driver or the negligent bottler of mice in pop bottles.

Whatever the case, the reaction to the growing number of malpractice cases (and the sizes of awards) has been to produce what is almost hysteria among many of those who speak for medicine. The lawyer comes to be looked on as a greedy shyster representing a shamming patient, regardless of social consequences; solemn statements are made to the effect that if this sorry state of affairs persists no one will dare to practice the healing arts. To make matters worse, the journalists have taken up the hue and cry. In consequence, many unwise things have been said by or on behalf of physicians.

For their part, many lawyers have overstated their side of things. Statements as emotionally charged as anything the doctors have said have been made both privately and for mass consumption. Some of our legal brethren, fearless of personal publicity, have galloped forth on white chargers hurling arrows labelled "conspiracy of silence" and "legalized butchery." Too little legal writing has come from the head; much too much has been heard from the belly.

The result has been to obscure a problem of the gravest concern to every one of us. The area of medical malpractice is an exceedingly difficult one for anyone to understand. Few of us lawyers can imagine the lonely burden of decision laid upon the physician in diagnosis and in treatment. We have, perhaps, been oversold on what modern medicine really knows, or what it can do; this deification of the man in the white coat carries within itself the seeds of its own destruction: Lucifer has farther to fall than Adam. On the other hand, the medical profession has not been taught the nature of its responsibility *in law*, nor yet what the law seeks to do, and how it goes about it. What is a most difficult and complex dilemma too often has been emotionally, not rationally, handled.

This is not to say that we have not had some excellent research and writing on the subject, nor that sensible members of both professions have not tried various means toward eliminating tensions and chicanery. One thinks of impartial panels and "screening" technics. But up to now, there has been no one work to which a lawyer could turn with confidence that both the legal *and* the medical aspects of malpractice litigation would be intelligently, informedly and impartially set forth.

I say "up to now," because I think Mr. Louisell and Dr. Williams have given us the book we have needed. You will notice at the outset that this book is the result of the collaboration of an eminent legal scholar and a physician. Too often, past literature has been special pleading or the work of a physician-lawyer; even in the latter case it is hard to avoid the appearance of bias. And it is likely to be poor stuff when lawyers write about medicine, or doctors write about the law.

Thus, I do not doubt that Chapter II, "Insight for the Lawyer into the Practice of Medicine," was primarily the work of Dr. Williams. What lawyer could have written it? If this chapter, and it alone, had been all that I, as a lawyer, had studied in the book, it would have been worth it. True, we pick up bits and pieces of insight into the doctor's dilemma, but never the whole. Here it is expressed simply, forcefully, candidly. Lawyers, for example, sense the influence of their colleagues upon their own attitudes and actions as lawyers. How many have given thought, when faced with a medical-legal problem, to the similar situation in medicine? How many of us have recognized the influence of hospital staffs upon individual physicians?

Or, to look at it from the other side, how many physicians truly grasp the nature of our adversary system—unscientific, seemingly disorganized, sometimes apparently designed to embarrass or obfuscate?

But this book contains a great deal more—more than can be discussed in a book review. I should like to single out a few areas especially well handled.

One of these is that thorny "menagerie case," *res ipsa loquitur*. I do not recall a more accurate or concise statement of the reason for the rule and the causes of its rapid push into medical malpractice cases. To be sure, our authors may seem to oversimplify what some have made most intricate, but one should not automatically equate complexity with scholarship. Whitehead once said of Lord Russell's discussion of a certain aspect of Christian theology, "He left the darkness completely unobscured." It is also worth noticing that the authors, drawing upon personal observations (in California, of all places!), call attention to the fact that defendants are beginning to demand trial by jury. *Res ipsa* may not be the irresistible force that many have supposed it to be. And I quite agree that a major weakness in the application of *res ipsa loquitur* in medical malpractice cases, as complicated as they are likely to be, has not come from the doctrine itself but from the manner in which trial courts have instructed juries thereon. Textbook explanations of the "rule" have to be carefully and specifically related to the evidence presented in the case if *res ipsa* is to mean anything even to the most intelligent of jurors

This reviewer also liked Chapter III, "The Fields of Medicine—Clues to Perspective." A lawyer seasoned in personal injury litigation will have gotten some idea of the function of the urologist or the dermatologist, but he may be unaware of the functions of other specialties. A lawyer less experienced is unlikely to understand any of the boundary lines or the medical justification for them.

The impartiality of coverage which stamps this book is shown by Chapter VI, "The Lawyers' Insight Into Physicians' Notions of Malpractice," as well as by Chapters XI and XII, dealing respectively with handling a case for plaintiff and one for defendant.

I also found Chapter XIX, "Future Sources of Actions—Exploitation and Prevention" most stimulating. This is not so much a come-on for the NACCA [National Association of Claimants' Compensation Attorneys] enthusiast as he might expect, it is no collection of hot tips or novel sources of liability to be had for the price of the book. Rather, it should be taken as a serious warning to all concerned of possibilities unplumbed. In this category, for example, are blood transfusions, psychiatric complications and excessive use of antibiotics (perfect examples that increased knowledge increases responsibilities.) As a matter of fact, doctors of any competence whatever know perfectly well the risks involved in such things as the wholesale use of antibiotics, and should not be unduly taken aback on the day when suit is brought upon

such a cause of action. The authors' attitude is not one of "Eureka!" but one of sober assessment and prevention.

Chapter XX on malpractice insurance is very useful and informative. It contains a good discussion of insurance company practice, which is frequently as important as policy terms, but may not be within the experience of many lawyers.

Finally, I commend the malpractice case reference list in Appendix A. Under headings beginning with "Abortion" and ending with "X-ray Injuries Associated With Therapy," leading cases are cited with a shorthand description of the meat of each. Since this book is in loose-leaf form, it will be easy to keep the list up-to-date, and that is particularly useful in an expanding field.

Throughout the book, the advantage of collaboration of doctor and lawyer in two separate persons shines forth. When medical matters are dealt with, you can be sure it is a doctor speaking *as* a doctor whom you hear, not a lawyer who has had a medical education on the side. This makes for greater confidence on the reader's part in statements made and opinions rendered.

If I have a criticism of the general nature of the book, it is that it is aimed at the lawyer primarily. This is necessarily so if a book is to be thorough, scholarly and professional. Yet it is a pity more doctors will not read it. Bombarded as physicians are by propaganda hostile to the very idea of malpractice liability, they should see the balanced side of the argument so competently furnished by this book. This would be therapy indeed, and it is long overdue.

In sum, every lawyer who is in any way concerned with medical malpractice litigation should have this book. Every so often some gap in our legal literature, crying for action, is at last plugged by a piece of scholarly work equal to the task. . . . That has at last happened for medical malpractice litigation, and I congratulate the authors on a pioneering work which has overcome a climate of hot emotionalism and a terrain of many perplexing and ill-considered cases to reach the Promised Land—a book on medical malpractice which cannot help but become the measure of all else that follow.—*Samuel M. Fahr,* professor of law at S.U.I.*

* Reprinted from IOWA LAW REVIEW, 47:543-546, (Winter) 1962.

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing on page vii in this issue:

ADLER—TEXTBOOK OF OPHTHALMOLOGY
Concentrates on the ophthalmic problems of the non-specialist—stressing diagnosis, treatment and indications that call for a specialist.

MAJOR AND DELP—PHYSICAL DIAGNOSIS
Offers step-by-step procedures for examining every area of the body by inspection, palpation, percussion and auscultation.

REID—TEXTBOOK OF OBSTETRICS
Gives you not only a clear picture of normal pregnancy and labor, but sound insight as well into the medical complications that may arise.

THE MOLD OF MURDER, by *Walter Bromberg,* M.D. (New York, Grune & Stratton, Inc., 1961. $4.75).

The author works toward finding solutions for the expensive and fruitless way in which our society deals with its criminals. His wealth of information, accompanied by sometimes brilliant thought, about the psychodynamics of criminals in general and of murderers specifically, has been collected during his years of experience with prisoners in civilian as well as military (naval) penal institutions.

In a systematic study, with illustrations from case histories and court records, Dr. Bromberg attempts to assess the close similarities and the apparently minor differences between the dynamics of the noncriminal and those of the criminal. It is this reviewer's opinion that the book does not explain clearly what factors enable the majority of individuals (who as Dr. Bromberg points out, "love their murders but hate their criminals") either to keep their own murderous wishes altogether out of their conscious awareness, or to control and integrate them, whereas the criminal acts upon his destructive impulses.

I wish to take exception to three points in the book. Psychodynamically experienced and sophisticated professional psychotherapists—i.e., social workers, psychodynamically oriented psychologists or psychiatrists who, through their own experience, are in position to evaluate Dr. Bromberg's findings and deductions—may profit greatly from reading this study. However, for interested laymen and lay workers who have had no clinical experience upon which to evaluate what he says, the book is far too complicated. Therefore, although it may be thought-provoking, it is not only useless but dangerous as a guide for probation officers and other lay workers.

My second point concerns what he calls his "analytic procedure," which he required of a 19-year-old delinquent prisoner during daily interviews. His "analytic method" consists of requiring the subject to lie down on a couch and to use "free association." I consider the classical psychoanalytic approach wiser, less authoritative and thus less destructive to the subject than Dr. Bromberg's "analytic method." In the psychoanalytic method the therapist would explain to the subject the purpose of the proposed sessions and their possible value to him. The prisoner would then be left to decide whether he wished to enter treatment. This experience in itself would accord the subject the dignity due to any individual, whether a criminal or not, and particularly one whose latent ability to love one wishes to awaken, and would not incite him unnecessarily, as an authoritative demand for a particular procedure would do.

Furthermore, a 19-year-old delinquent lacks enough strength of the ego (integrative function of the personality) to use a couch. From a psychoanalytic point of view, he should sit up, for on the couch he would almost at once regress to a negative transference (i.e., begin to transfer negative childhood attitudes on to the doctor) and in addition, with a man therapist, the reclining position is contraindicated since it immediately and unnecessarily overloads the patient's feelings with homosexuality—all of which Dr. Bromberg's subject manifested. The technic may have been helpful in eliciting "interesting" psychological information, but this reviewer considers investigative procedures justified only if they are also therapeutic and

if the therapist can expect to carry the patient until the patient can deal with his problem.

My third point concerns Dr. Bromberg's final suggestion, for the future, that delinquency may be dealt with by familiarizing society at large (a psychiatrically unscreened audience) with its own psychodynamics through the use of television as a medium for general psychodrama—a form of group psychotherapy designed to enable all interested individuals to deal more directly with, and thus learn to master, their own unacceptable impulses. I think such a proposal is utopian and a result of the author's over-simplifying, mechanistic-materialistic approach.

He overlooks the therapeutic agents necessary for a constructive outcome of psychotherapy. The individual can make constructive use of a growing awareness of his own destructive impulses only if, at the same time, his latent ability to love—to identify with the members of the group in group therapy, or with the therapist in individual therapy—is given a chance to develop. Over television, when the audience consists principally of observers rather than of true members of the group, the viewer would find it difficult to identify sufficiently, and thus therapeutically, with the performances. Without such identification and without the constant supervision of the therapist, viewers who possess only marginal ego strength might become psychotic or delinquent in the process of becoming aware of their own destructive impulses.—*Ada Dunner*, M.D.

THE ABORTIONIST, by Dr. X as told to *Lucy Freeman*. (New York, Doubleday & Co., Inc., 1961. $3.95).

"Take a city, any big city in America, and that is where I live, two of me, ten of me, twenty of me. No city can do without me. I am considered the outrageous attendant of outrageous love—an abortionist."

These words open the story of a very successful abortionist—very successful, that is, until he got caught! His statistics must be right, for it is estimated that over a million criminal abortions are performed yearly in the United States. The anonymous co-author of this book says he relieved over 25,000 women of their unwanted pregnancies—married and unmarried women of all races and of all religions. Apparently he was one of the "good" ones, employing meticulously sterile technic, utilizing the services of a doctor-anesthetist and well trained nurses. He had an operating room, a recovery room—in fact, a complete abortionarium. His patients came to him, or were referred to him, from all walks of life and all social strata, from remote parts of the United States and from other countries.

He feels that it is criminal that unqualified—indeed often nonmedical—people are killing or maiming our women by botching the job.

His fees ranged from "nothing" (because he was compassionate) to $10,000, and on his busiest day he handled 27 patients. A friend of his handles 10,000 patients per year in his "well run abortionarium." Dr. X does not feel, however, that money was the most important reason for his choice of specialty; he had a genuine desire to relieve the suffering caused by the continuance of an unwanted pregnancy. After all, he insists, an abortion is not, in itself, an illegal procedure. Only when it is done for reasons not recognized by the courts does it become a criminal act, and those reasons may vary from state to state. He feels that our present abortion laws are too strict and confining, and that a liberalization of them should be considered.—*H. Kirby Shiffler*, M.D.

Sixth Annual Blank Hospital Pediatric Conference

Younker Memorial Rehabilitation Center, Des Moines

Friday, April 13

8:30 a.m. REGISTRATION

9:00 a.m. MORNING SESSION
- "Biological Effects of Bilirubin"—Robert A. Aldrich, M.D., head of pediatrics, University of Washington, Seattle
- "Disturbances of Growth in Children"—John D. Crawford, M.D., assistant professor of pediatrics, Harvard University
- "Problems of Unexplained Fever"—Robert B. Lawson, M.D., head of pediatrics, Northwestern University

1:00 p.m. BUSINESS MEETING—Iowa Chapter, American Academy of Pediatrics

2:00 p.m. AFTERNOON SESSION
- Clinical Presentation—Resident pediatric staff
- "Detection and Significance of Hemorrhagic Disease in Children"—Irving Schulman, M.D., head of pediatrics, University of Illinois

5:00 p.m. BUSINESS MEETING—Iowa Pediatric Society

7:00 p.m. SOCIAL HOUR AND DINNER—for physicians and their wives and guests, at the Des Moines Club

Saturday, April 14

9:00 a.m. MORNING SESSION
- Clinical Presentation—Resident pediatric staff
- "Why We Succeed: Homeostatic Mechanisms"—Dr. Crawford
- "Drug-Induced Aplastic Anemia"—Dr. Schulman

2:00 p.m. AFTERNOON SESSION
- "Differential Diagnosis of Collagen Diseases in Children"—Dr. Aldrich
- "Problems of Overtreatment in Pediatrics"—Dr. Lawson

Iowa Chapter of the American Academy of General Practice

The Seventh Annual Refresher Course at S.U.I.

Members of the Iowa Chapter of the American Academy of General Practice enjoyed an interesting refresher course put on by the faculty of the College of Medicine at the University in Iowa City, February 13-16. Attesting to the quality of the program was the fact that the lecture hall at University Hospitals was filled from the first to the last hour on each of the four days.

This is the seventh year in which such a course has been presented by the College of Medicine for the benefit of the family doctor, and the program has grown in popularity each year. Two hundred thirty-five physicians registered this year, including 31 from outside Iowa, some having come from as far away as Texas and Wyoming. Seven of the out-of-state general practitioners were "repeaters," having enjoyed one or more similar courses previously.

Between lectures, many of the physicians said that for a person accustomed to the activity of a busy office, the hardest part of the course was sitting all day taking notes. It was interesting to note how different were the kernels of information that seemed important to various ones of the listeners, depending no doubt upon the particular symptoms displayed by their most perplexing patients back home. This is probably the secret of the popularity of the refresher course put on by our College of Medicine. The specialists from the halls of learning don't merely give us an outline of what to do until the surgeon arrives, or the internist or the gynecologist. They show us the new and better methods of diagnosis and treatment so that *we* can use them on the patients we all see in our offices.

The first day, Tuesday, we were in surgery—almost literally so—for we were given five presentations on practical technics over closed-circuit television. The view we received over six TV sets, carefully placed in the lecture hall, let us see almost as clearly as if we had been doing the procedures ourselves. Thus, electronics entered the teaching of postgraduate medicine in Iowa, and we found it very effective as well as interesting.

Wednesday, we brushed up on our pediatrics, covering mainly the period when children are in the "infant" classification, shortly after birth. "Neurological Examination of the Neonate" by Drs. J. C. MacQueen and Hans Zellweger, reminded me of a group of things that I personally may have been overlooking in examinations of babies during the newborn period, when the defects—if present—should be discovered.

Thursday, the general practitioners' old friend, Dr. W. C. Keettel, chairmanned talks and conferences on our common obstetric and gynecologic problems. Many subjects were reviewed and presented in a new light to the family doctor, to help him provide better care for the mothers in his practice. Thursday evening, the annual banquet was held at the Elks Club, with the junior and senior medical students and the participating faculty members as guests of the Iowa Chapter and of Marion Laboratories. Three hundred attended the banquet and heard a very interesting and stimulating talk by General James P. Cooney, vice president for medical affairs of the American Cancer Society.

On Friday, the last day, the program was conducted by the faculty of the Department of Internal Medicine, and it held most of the visiting doctors until the end of the last hour. The subjects discussed were again the family doctor's daily problems in diagnosis and therapy—this time of the cardiac, the diabetic and the "family plagues of boils."

I have touched on only some of the highlights that particularly interested me. Another person would probably be as enthusiastic about subjects that I haven't mentioned but which were likewise presented.

—*John D. Conner,* M.D., Nevada

COME TO THE IOWA ACADEMY'S PARTY

Des Moines Room, Hotel Savery
Cocktails 6-8 p.m.

All general practitioners and their wives are welcome.
Tickets will be $1 per person.

STATE DEPARTMENT OF HEALTH

Edward G. Zimmer
COMMISSIONER

Morbidity Report for Month of February, 1962

Diseases	1962 Feb.	1962 Jan.	1961 Feb.	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	395	304	365	Jefferson, Johnson, Kossuth, Polk, Woodbury
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	620	382	402	Buchanan, Buena Vista, Crawford, Polk
Whooping cough	4	14	8	Kossuth
Brucellosis	9	3	13	Scott, Washington
Chickenpox	303	446	1,073	Dubuque, Polk, Scott, Story
Meningococcic meningitis	1	1	0	Scott
Mumps	259	253	608	Clay, Polk, Story
Poliomyelitis	1	1	0	Des Moines
Infectious hepatitis	178	199	195	Floyd, Johnson, Polk
Rabies in animals	44	39	20	Mahaska, O'Brien, Washington
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	29	25	33	For the state
Syphilis	52	55	109	For the state
Gonorrhea	70	96	114	For the state
Histoplasmosis	1	1	0	Wapello
Food intoxication	0	0	0	
Meningitis (type unspecified)	2	0	1	Jasper, Polk
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	1	0	
Salmonellosis	1	0	4	Boone
Tetanus	0	0	0	
Chancroid	0	0	1	
Encephalitis (type unspecified)	0	0	0	
H. influenzal meningitis	1	0	0	Grundy
Amebiasis	2	1	0	Boone, Johnson
Shigellosis	0	6	9	
Influenza	14,576	7,858	17	Outbreak was statewide

Typhoid Fever Cases and Carriers Iowa—1961

Only five cases of typhoid fever have been reported as having occurred in Iowa during 1961. Upon investigation, including the making of laboratory tests, six cases originally reported as typhoid fever proved to have been salmonella infections. Diagnoses of four of the true typhoid fever cases were made on the basis of clinical findings and laboratory serologies. In the other case, the typhoid organism was isolated.

Two new typhoid carriers were found. One of them was identified when the organisms were grown from the gallbladder contents following cholecystectomy. In this instance, repeated cultures—the first of them taken 14 or more days following the last administration of antibiotics—have all proved to be negative. The second carrier is an 87-year-old man who has a history of having had typhoid fever in 1898, during the Spanish-American War. Since the incidence level of the disease was so high among U. S. troops at that time, there is little doubt that the illness which this man says he had was typhoid fever. He was hospitalized in 1961 because of a typhoid-like illness. The original diagnosis was "typhoid fever with convalescent carrier condition." Six months after release from the hospital, this man continues to be repeatedly positive for typhoid organisms, phage type D7. The physicians who studied the case still hold some doubt as to whether the illness may actually have been typhoid. If it were not, then it is arguable that the patient had probably continued to be a carrier following his recovery from his illness in 1898. Our investigations of his family and other contacts have failed to bring to light any cases of the disease for which he might have been a carrier source. If he actually retained the infection he acquired in 1898, he probably is one of the longest continuous typhoid-fever carriers in the United States.

Iowa's previous record for longevity of a typhoid carrier was that of another Spanish-American War soldier. While still ill with the disease, he had been returned from Cuba to his home in Illinois. Later, with his family, he had moved to Iowa, and prior to the middle '30's when he was found to be a carrier, he probably had been responsible for several cases of typhoid fever in his

family and among his other immediate contacts. He died in 1948.

Iowa's typhoid carrier registry contains a total of 52 names. Members of the state and local health departments plan to visit each of those persons at least once a year. In some instances, visits are made much more often. Most of the carriers are in the older age groups. Because of their age, they have a tendency to shun or to disregard their responsibilities, and it frequently is very difficult to acknowledge their duty to help prevent a spread of the infection. In many instances it is necessary for the health department representatives to work through a younger, more responsible family member. Many of the elderly carriers are becoming residents in nursing homes or are requiring periods of hospital care. *At any time when a typhoid carrier is given attention at any institution, it is necessary that the persons in charge know that he is a typhoid carrier.*

1961 SUMMARY

Total Carriers	52
Questionable	2
Discovered in 1961	2
Median Age	70
Age Range	42 to 95

Age Groups

40-49	5
50-59	6
60-69	14
70-79	18
80-89	7
90-99	2

Summary of 1961 Fort Dodge Virus Outbreak Identified as Coxsackie B_5

The Public Health Service Communicable Disease Center Laboratories at Kansas City has just reported to the Iowa State Department of Health on its nearly completed laboratory studies made on specimens collected last summer from 262 persons in the Fort Dodge area. The virus that caused the illness has been identified, in those studies at Kansas City, as Coxsackie B_5.

The outbreak that was studied began about the last week in July, reached its peak at the end of August, and subsided during the month of September. The illness consisted of sore throat, fever, headache, muscle aches, pains, abdominal cramps, chills, nausea and vomiting. In about 10 per cent of the cases, there was stiff neck, dizziness and extreme weakness. Although the majority of patients were severely ill for just two or three days, a few were hospitalized. From the large studies made last summer by personnel from the Public Health Service, the State Department of Health, local health groups and volunteers, it was shown that in families in which a case occurred, 56 per cent of the other family members contracted the illness. Seventy-two per cent of the cases occurred in the 1-14 yr. age group, and the greatest frequency of cases was in the 5-9 yr. age group. There was an incubation period of between two and five days.

A breakdown of the report just received from Kansas City shows that from 262 different persons who submitted specimens for examination, the Coxsackie B_5 virus was found in specimens from 51 of them. Since the infection was not limited to Fort Dodge but also occurred in persons living in the surrounding area, specimens were obtained from cases in other towns as well. Specimens from three persons in Humboldt, from four in Gilmore City and from three in Dakota City were among the 51 that were found to be positive for the virus. The remaining 41 positive isolations were from persons with Fort Dodge addresses. Although most of the virus studies undertaken last August by the Public Health Service Laboratories at Kansas City have been completed, work is continuing on a small group (seven) of as yet unidentified viruses.

Though it is definite, from the large numbers of isolations, that Coxsackie B_5 was the causative organism, five isolations of Coxsackie B_2 were made from specimens collected in the area. Two were from members of a family in Lehigh, and the remaining three were from a family in Fort Dodge. One isolation of Coxsackie B_4 was made from a Fort Dodge resident. These findings are to be interpreted as representing a few cases of other varieties of Coxsackie infection occurring at the same time. A parallel situation would be the occurrence of a few cases of scarlet fever during a measles outbreak.

Although it was originally assumed that the outbreak was probably due to a Coxsackie virus, it was a bit surprising that the causative organism was found to have been Coxsackie B_5. We had previously studied and reported upon a large outbreak at Mason City in 1956, and upon a smaller outbreak of the same illness at Fort Dodge later during that same year. The clinical histories in the 1956 outbreaks were different. The patients were more acutely ill. The original diagnosis in many of the 63 Mason City cases hospitalized at the beginning of the outbreak was "non-paralytic poliomyelitis." The patients' chief complaints were severe headache, stiff neck and fever. The fever was uniformly present, and was characteristically of the remitting type, with daily spikes to between 99° and 105°F., and lasted from one to 16 days, with a median of seven days.

The outbreak last summer was studied as a part of the "around the year" virus surveillance plan for the Fort Dodge community. The public response at that time was fine, when people were requested to cooperate in the intensive study. Their interest is continuing.

The current aspect of the study includes weekly collections of nose and throat cultures taken on a

random-sampling basis by school nurses from youngsters in the Fort Dodge schools. Those, along with additional specimens collected by physicians, are sent periodically to the Public Health Service Laboratories at Kansas City for identification of any types of virus that may be present in the area during the winter months. The work continues under the direction of health officials from the Public Health Service, the State Department of Health and the City of Fort Dodge.

Tuberculosis—New Cases
Iowa—1961

Counties	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Allamakee						1							1
Appanoose			1			1			1		1		4
Audubon		1		1									2
Blackhawk	1	3		2	1		2	2		1			12
Boone			2	1							1	1	5
Bremer					1			2					3
Buchanan			1	1					1				3
Buena Vista						2				1			3
Calhoun	1					1							2
Cass			1		1								2
Cedar											1	1	2
Cerro Gordo		1			1	1	1		1		2		7
Cherokee									1				1
Chickasaw									1				1
Clarke									1				1
Clay						1		1					2
Clayton			1			1	3						5
Clinton	1		1			1					1	1	5
Dallas						1							1
Davis				1									1
Decatur			1					1				1	3
Delaware		1	1				1						3
Des Moines	2	1	1										4
Dubuque	1	2	1		1		3		1		1	1	11
Emmet		1	1				1						3
Fayette		1		2				2					5
Floyd		1	2	1						2			6
Greene											1		1
Guthrie							1						1
Hamilton	1												1
Hancock										1			1
Hardin									1				1
Harrison						1							1
Henry	1		1	1								1	4
Humboldt				1									1
Jackson									1				1

Counties	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Jasper			1								1		2
Jefferson					1								1
Johnson		1		1		2			1		2		7
Jones						1	1						2
Kossuth				1									1
Lee				1			2	2		2	2		9
Linn	3	1	2			2	1	4	1	1	3		18
Louisa		2	1						1		1		5
Madison		1											1
Mahaska							1				1		2
Marion		1							1	1			3
Marshall				1	1				2				4
Mills						1							1
Monona												1	1
Monroe										2			2
Montgomery		1	2								1		4
Muscatine			1				1					1	3
O'Brien							1						1
Osceola				1						1			2
Page								1			1		2
Palo Alto		1											1
Polk	3	4	3	6	4	5		2	3	3	4	4	41
Pottawattamie	2	2	1	2		2	1		2	1		2	15
Sac		1			1								2
Scott	2	1	1	1	1		1			1	1	1	10
Shelby			1										1
Sioux									1		1	2	4
Story												1	1
Tama	1			1	1		1	1					5
Taylor					2			1					3
Union							1				1		2
Wapello		1		1	1	2		1			1		7
Warren					1					1		1	3
Washington	1		1										2
Wayne		1											1
Webster		1	1				2	2			2		8
Winnebago						1							1
Winneshiek		1							1				2
Woodbury			1	1		2	1			2	2	1	10
1961 TOTAL	20	32	31	28	18	29	26	22	22	20	32	20	300
1960 TOTAL	46	32	62	38	31	31	26	31	29	54	24	40	444

REACTIVATED CASES, 1960—38
REACTIVATED CASES, 1961—19

Division of Tuberculosis Control, January 20, 1962.

COUNTY MEDICAL SOCIETY OFFICERS

COUNTY	PRESIDENT	SECRETARY	DEPUTY COUNCILOR
Adair	L. H. Ahrens, Fontanelle	A. S. Bowers, Orient	A. J. Gantz, Greenfield
Adams	C. L. Bain, Corning	J. C. Nolan, Corning	J. C. Nolan, Corning
Allamakee	R. H. Palmer, Postville	L. B. Bray, Waukon	C. R. Rominger, Waukon
Appanoose	R. R. Edwards, Centerville	C. F. Brummitt, Centerville	E. A. Larsen, Centerville
Audubon	H. K. Merselis, Audubon	R. L. Bartley, Audubon	H. K. Merselis, Audubon
Benton	O. A. Dutton, Van Horne	P. J. Amlie, Blairstown	N. C. Knosp, Belle Plaine
Black Hawk	G. D. Phelps, Waterloo	M. M. Wicklund, Waterloo	C. D. Ellyson, Waterloo
Boone	W. G. Dennert, Boone	J. C. Sutton, Boone	R. L. Wicks, Boone
Bremer	E. H. Stumme, Denver	J. W. Rathe, Waverly	R. E. Shaw, Waverly
Buchanan	N. L. Hersey, Independence	R. K. White, Independence	P. J. Leehey, Independence
Buena Vista	W. E. Erps, Storm Lake	E. R. Blue, Storm Lake	R. R. Hansen, Storm Lake
Butler	B. V. Andersen, Greene	F. F. McKean, Allison	F. F. McKean, Allison
Calhoun	P. W. Van Metre, Rockwell City	L. M. Karp, Lake City	G. S. Rost, Lake City
Carroll	C. A. Fangman, Carroll	H. L. Skinner, Carroll	J. M. Tierney, Carroll
Cass	E. M. Juel, Atlantic	J. D. Weresh, Atlantic	E. M. Juel, Atlantic
Cedar	H. E. O'Neal, Tipton	O. E. Kruse, Tipton	H. E. O'Neal, Tipton
Cerro Gordo	R. G. Berggreen, Mason City	A. E. McMahon, Mason City	H. G. Marinos, Mason City
Cherokee	H. C. Ellsworth, Cherokee	D. C. Koser, Cherokee	H. J. Fishman, Cherokee
Chickasaw	J. D. Caulfield, New Hampton	C. W. Clark, Nashua	M. J. McGrane, New Hampton
Clarke	G. B. Bristow, Osceola	E. E. Lauvstad, Osceola	H. E. Stroy, Osceola
Clay	F. D. Edington, Spencer	Eunice M. Christensen, Spencer	C. C. Jones, Spencer
Clayton	E. M. Downey, Guttenberg	R. H. Shepherd, Monona	P. R. V. Hommel, Elkader
Clinton	J. H. Taylor, Clinton	A. L. Jensen, Clinton	V. W. Petersen, Clinton
Crawford	R. M. Johnson, Denison	J. M. Hennessey, Manilla	R. A. Huber, Charter Oak
Dallas-Guthrie	C. S. Fail, Adel	A. M. Cochrane, Perry	A. G. Felter, Van Meter (D) W. A. Seidler, Jamaica (G)
Davis	J. R. Mincks, Bloomfield	P. T. Meyers, Bloomfield	H. J. Gilfillan, Bloomfield
Decatur	T. R. Viner, Leon	E. E. Gamet, Lamoni	E. E. Gamet, Lamoni
Delaware	W. J. Willett, Manchester	R. L. Waste, Manchester	R. E. Clark, Manchester
Des Moines	R. D. Rowley, Burlington	W. C. Zabloudil, Burlington	R. B. Allen, Burlington
Dickinson	D. F. Rodawig, Jr., Spirit Lake	R. J. Coble, Lake Park	E. L. Johnson, Spirit Lake
Dubuque	R. D. Storck, Dubuque	E. V. Conklin, Dubuque	R. J. McNamara, Dubuque
Emmet	R. M. Turner, Armstrong	R. P. Bose, Estherville	R. L. Cox, Estherville
Fayette	H. H. Wolf, Elgin	D. A. Freed, West Union	A. F. Grandinetti, Oelwein
Floyd	H. A. Tolliver, Charles City	C. L. Kelly, Jr., Charles City	E. V. Ayers, Charles City
Franklin	W. W. Taylor, Sheffield	D. K. Benge, Hampton	W. L. Randall, Hampton
Fremont		A. R. Wanamaker, Hamburg	K. D. Rodabaugh, Tabor
Greene	A. A. Knosp, Paton	G. F. Canady, Jefferson	E. D. Thompson, Jefferson
Grundy	E. A. Reedholm, Grundy Center	W. H. Verduyn, Reinbeck	E. A. Reedholm, Grundy Center
Hamilton	D. C. Anderson, Stanhope	E. F. Brown, Webster City	G. A. Paschal, Webster City
Hancock-Winnebago	S. M. Haugland, Lake Mills	P. J. Melichar, Garner	J. R. Camp, Britt
Hardin	H. E. Gude, Iowa Falls	F. N. Cole, Iowa Falls	L. F. Parker, Iowa Falls
Harrison	F. G. Sarff, Logan	R. G. Wilson, Missouri Valley	A. C. Bergstrom, Missouri Valley
Henry	Mary P. Couchman, Mt. Pleasant	H. M. Readinger, New London	J. S. Jackson, Mt. Pleasant
Howard	Abner Buresh, Lime Springs	W. K. Dankle, Cresco	P. A. Nierling, Cresco
Humboldt	J. H. Coddington, Humboldt	Beryl F. Michaelson, Dakota City	I. T. Schultz, Humboldt
Ida	J. W. Martin, Holstein	J. B. Dressler, Ida Grove	J. B. Dressler, Ida Grove
Iowa	C. G. Wuest, Amana	I. J. Sinn, Williamsburg	C. F. Watts, Marengo
Jackson	O. L. Frank, Maquoketa	L. B. Williams, Maquoketa	L. B. Williams, Maquoketa
Jasper	M. R. Moles, Newton	L. H. Koelling, Newton	J. W. Ferguson, Newton
Jefferson	K. H. Strong, Fairfield	J. H. Turner, Fairfield	J. W. Castell, Fairfield
Johnson	R. A. Wilcox, Iowa City	A. C. Wise, Iowa City	L. H. Jacques, Iowa City
Jones	E. H. DeShaw, Monticello	T. R. Dolan, Monticello	L. D. Caraway, Monticello
Keokuk	J. S. Hooley, Sigourney	R. G. Gillett, Sigourney	R. G. Gillett, Sigourney
Kossuth	J. M. Rooney, Algona	D. F. Koob, Algona	
Lee	R. E. Murphy, Fort Madison	Sebastian Ambery, Keokuk	G. H. Ashline, Keokuk G. C. McGinnis, Ft. Madison
Linn	R. M. Wray, Cedar Rapids	S. T. Moen, Cedar Rapids	H. J. Jones, Cedar Rapids
Louisa	J. H. Chittum, Wapello	L. E. Weber, Jr., Wapello	E. S. Groben, Columbus Junction
Lucas	H. D. Jarvis, Chariton	R. E. Anderson, Chariton	A. L. Yocom, Chariton
Lyon	H. H. Gessford, George	S. H. Cook, Rock Rapids	S. H. Cook, Rock Rapids
Madison	G. J. Anderson, Winterset	E. G. Rozeboom, Winterset	J. E. Evans, Winterset
Mahaska	D. K. Campbell, Oskaloosa	L. J. Grahek, Oskaloosa	R. L. Alberti, Oskaloosa
Marion	G. M. Arnott, Knoxville	Stewart Kanis, Pella	D. H. Hake, Knoxville
Marshall	M. E. Jeffries, Marshalltown	W. T. Shultz, Marshalltown	R. C. Carpenter, Marshalltown
Mills	W. A. DeYoung, Glenwood	W. A. DeYoung, Glenwood	M. L. Scheffel, Malvern
Mitchell	T. E. Blong, Stacyville	W. E. Owen, St. Ansgar	T. E. Blong, Stacyville
Monona	L. A. Gaukel, Onawa	W. P. Garred, Onawa	L. A. Gaukel, Onawa
Monroe	H. J. Richter, Albia	D. N. Orelup, Albia	D. N. Orelup, Albia
Montgomery	Oscar Alden, Red Oak	E. L. Croxdale, Villisca	H. E. Bastron, Red Oak
Muscatine	E. R. Wheeler, Muscatine	Samuel Bluhm, Muscatine	K. E. Wilcox, Muscatine
O'Brien	K. W. Myers, Sheldon	A. D. Smith, Primghar	E. B. Getty, Primghar
Osceola	H. B. Paulsen, Harris	J. H. Thomas, Sibley	F. B. O'Leary, Sibley
Page	W. G. Kuehn, Clarinda	K. V. Jensen, Clarinda	K. J. Gee, Shenandoah
Palo Alto	C. C. Moore, Emmetsburg	L. C. Wigdahl, Emmetsburg	H. L. Brereton, Emmetsburg
Plymouth	J. M. Gacusana, Akron	F. C. Bendixen, Le Mars	R. J. Fisch, Le Mars
Pocahontas	E. O. Loxterkamp, Rolfe	H. L. Pitluck, Laurens	
Polk	M. T. Bates, Des Moines	R. J. Reed, Des Moines	J. G. Thomsen, Des Moines
Pottawattamie	G. H. Pester, Council Bluffs	D. T. Stroy, Council Bluffs	G. H. Pester, Council Bluffs
Poweshiek	J. R. Parish, Grinnell	B. Grimmer, Grinnell	S. D. Porter, Grinnell
Ringgold	D. E. Mitchell, Mount Ayr	D. E. Mitchell, Mount Ayr	
Sac	John Hubiak, Odebolt	C. A. Stratman, Sac City	J. W. Gauger, Early
Scott	A. B. Hendricks, Davenport	J. L. Kehoe, Davenport	Erling Larson, Davenport
Shelby	G. E. Larson, Elk Horn	T. S. Hutcheson, Harlan	J. H. Spearing, Harlan
Sioux	K. R. Swanson, Hull	T. E. Kiernan, Sioux Center	M. O. Larson, Hawarden
Story	M. A. Johnson, Nevada	Ralph Jensen, Ames	J. D. Conner, Nevada
Tama	A. J. Havlik, Tama	C. W. Maplethorpe, Jr., Toledo	A. J. Havlik, Tama
Taylor	R. W. Boulden, Lenox	R. W. Boulden, Lenox	R. W. Boulden, Lenox
Union	J. L. Beattie, Creston	H. J. Peggs, Creston	H. J. Peggs, Creston
Van Buren	Kiyoshi Furumoto, Keosauqua	J. T. Worrell, Keosauqua	Kiyoshi Furumoto, Keosauqua
Wapello	E. W. Ebinger, Ottumwa	R. P. Meyers, Ottumwa	L. J. Gugle, Ottumwa
Warren	Amalgamated With Polk County		
Washington	E. D. Miller, Wellman	E. J. Vosika, Washington	G. E. Montgomery, Washington
Wayne	K. R. Garber, Corydon	C. N. Hyatt, Corydon	D. R. Ingraham, Sewal
Webster	J. R. Kersten, Fort Dodge	C. L. Dagle, Fort Dodge	C. J. Baker, Fort Dodge
Winneshiek	J. A. Bullard, Decorah	E. F. Hagen, Decorah	E. F. Hagen, Decorah
Woodbury	E. H. Sibley, Sioux City	R. C. Larimer, Sioux City	D. B. Blume, Sioux City
Worth	R. L. Olson, Northwood	W. G. McAllister, Manly	C. T. Bergen, Northwood
Wright	A. L. Pitcher, Belmond	R. F. McCool, Clarion	S. P. Leinbach, Belmond

Physicians and Their Wives Can Help Farm People

Identify and Solve Rural Health Problems

All of us want farm people and the staffs of the organizations which serve them to feel that doctors and their wives are interested in the maintenance of rural health and are anxious to help in eliminating threats to it whenever they arise. The Iowa Medical Society's Rural Health Committee, composed of doctors from each of 11 sections of the state, is working with the state groups that have been set up to serve farm communities, and with the AMA Council on Rural Health. In addition, the Woman's Auxiliary to the Iowa Medical Society and many of its county components have set up rural health committees to give assistance wherever possible.

Within the past two months, the IMS Rural Health Committee has mapped out some avenues for cooperation between farm families and their doctors, but implementation must take place at the local level, and the success of the actual programs will depend upon the initiative of the rural people themselves, and of the agricultural extension workers, the county medical societies and the local Auxiliaries.

The Cooperative Extension Service in Agriculture and Home Economics has in each Iowa County a field staff that includes—ideally, at least—a county agent, a home economist and a county extension assistant or associate who works with youth groups. In addition, there are supervisors for each of those three sorts of personnel in each of six geographic areas.

The Ag. Extension, as it is usually called, advises and assists community groups of many sorts. Some of them come together more or less temporarily to study topics in conservation, agricultural production and marketing, but others of the groups are concerned with developing community leaders, improving family life and providing youth activities, and continue from year to year. These latter sometimes undertake to deal with health matters.

LIAISON NEEDED IN EVERY PART OF THE STATE

At a meeting in Ames on January 23, 1962, the IMS Rural Health Committee and staff members of the Ag. Extension Service agreed that local medical societies and their Auxiliaries should be asked to meet with the extension workers in their respective counties, for exchanges of ideas on the health needs of their communities and on how to fill them.

One important project on which physicians and their wives can begin cooperating with extension workers and the groups that they advise is immunization against tetanus. As all of us know, the emergency protection against tetanus is both more dangerous and less certain than is the long-term protection, but emergency protection is frequently necessary, nowadays, because so many people have allowed their immunity to lapse. Since farm family members perhaps sustain cuts and scratches, if not more serious injuries, more frequently than do other people, tetanus immunization is a true rural health need.

The Ag. Extension staff at Ames asked that a doctor in each county be designated as the physician whom farm groups can call upon to present statistics on the tetanus hazard and to explain the preferability of long-term protection against the disease. If the county medical societies will make such appointments, the IMS headquarters will supply some of the pertinent literature and figures for them to use.

After starting a county-wide tetanus immunization program, doctors and their wives doubtless will think of other activities for which their communities are in need, but here are a few suggestions. They might help popularize the idea of "a family doctor for every farm family." They might aid in getting people to enroll for the newly-launched Medical Self-Help Training Program, which is designed to enable potentially isolated family groups to treat their injured following a nuclear attack or some other disaster. And they

might help recruit both farm and town young people for medical or paramedical careers. For this last-named project, the IMS is prepared to furnish numerous booklets and pamphlets, but direct contacts between the young men and women and the practicing physicians and their wives is sure to be most effective.

NEW TASKS FOR THE IMS COMMITTEE

The Ag. Extension executive asked at the January meeting for materials with which farm youths can be taught good posture, and the Committee agreed to have a teaching film made for that purpose. Another of their requests was for help in planning and presenting health programs at the summer camp for 4-H Club members that has been established near Ames. Still another was for data with which youngsters can be shown that normality in any of several aspects of physical development is a range of figures rather than just one, for juveniles of any particular age.

IMS COOPERATION WITH THE AMA COUNCIL ON RURAL HEALTH

To stimulate interest in rural health work and to publicize some of the problems that should be solved, the Iowa Medical Society will act as host for an AMA Regional Conference on Rural Health in Des Moines next month. As the following program shows, the speakers will be outstanding ones, and their messages will contain still more ideas on how physicians and farm people can work together in making America an even better place in which to live.

As a physician or as a physician's wife, you can aid in this endeavor by attending the conference, and you can help even more by bringing several of your public spirited friends with you.

Remember the place and dates—Hotel Savery, Des Moines, May 18 and 19—and if you will need hotel or motel reservations, apply for them promptly.

THIRD AMA REGIONAL RURAL HEALTH CONFERENCE

Theme: "Good Rural Health—Our Nation's Wealth"

Friday Morning Session, May 18

Grand Ballroom, Savery Hotel

8:00 a.m. REGISTRATION (No registration fee)

10:00 INVOCATION—The Reverend Edward W. O'Rourke, Des Moines, Executive Director of the National Catholic Rural Life Conference

10:05 GREETINGS—G. H. Scanlon, M.D., Iowa City, President of the Iowa Medical Society

10:10 "Purpose of the Conference"—Samuel P. Leinbach, M.D., Belmond, Member of the AMA Council on Rural Health

10:25 "Good Rural Health—Our Nation's Wealth"—Mr. Howard E. Hill, Des Moines, Member of the Board of Directors of the American Farm Bureau Federation, and President of the Iowa Farm Bureau Federation

11:00 "Medical Self-Help Training"—Mr. James D. Clark, Atlanta, Georgia, Chief of the Medical Self-Help Training Section, U.S.P.H.S. Division of Health Mobilization

11:30 DISCUSSION PERIOD

12:00 RECESS FOR LUNCHEON

Friday Afternoon Session, May 18

Grand Ballroom, Savery Hotel

2:00 p.m. PANEL DISCUSSION: "Quacks, Medicine and the Law"
- Mr. Alfred Barnard, Director, Kansas City District, U. S. Food and Drug Administration
- Mr. Oliver Field, Chicago, Director of the AMA Department of Investigation

3:00 DISCUSSION PERIOD

3:45 "Animal Diseases That Endanger Human Health"—William A. Hagen, D.V.M., Ames, Director of the National Animal Disease Laboratory

4:15 DISCUSSION PERIOD

4:30 "Poison Dangers on the Farm"—Clyde M. Berry, Ph.D., Iowa City, Member of the Staff of the S.U.I. Institute of Agricultural Medicine

5:00 DISCUSSION PERIOD

Friday Evening Session, May 18

Terrace and Des Moines Rooms, Savery Hotel

7:00 p.m. BANQUET

INVOCATION—The Reverend C. W. Tompkins, Fort Dodge, Executive Director, Friendship Haven Home for the Aged

INTRODUCTION OF SPECIAL GUESTS

GREETINGS
- The Honorable W. L. Mooty, Lieutenant Governor of Iowa
- Mrs. Harlan English, Danville, Illinois, President of the Woman's Auxiliary to the American Medical Association

"Medicine's Mission in a Changing Culture"—The Reverend Robert Varley, Th.D., Rector of Salisbury Episcopal Church, Salisbury, Maryland

Saturday Morning Session, May 19

Grand Ballroom, Savery Hotel

9:00 a.m. PANEL DISCUSSION: "Health Insurance—Policies, Principles, Procedures and Payments"
- Mr. James E. Bryan, of Bryan and Norris Medical Administrators, New York City
- Mr. Frank Sullivan, Topeka, Commissioner of Insurance for the State of Kansas
- Mr. E. J. Faulkner, Lincoln, Nebraska, President of Woodman Accident and Life Company

10:00 DISCUSSION PERIOD

10:40 "The Illinois Student Medical Loan Program"—Mr. Roy E. Will, Bloomington, Illinois, Assistant Secretary of the Illinois Agricultural Association

11:10 DISCUSSION PERIOD

11:30 SUMMARY OF THE CONFERENCE—Marvin A. Anderson, Ph.D., Ames, Associate Director, Agricultural Extension Service, Iowa State University

12:00 ADJOURNMENT

THE DOCTOR'S BUSINESS

Ten Rules for Successful Investing

HOWARD D. BAKER
Waterloo

For most people, investing is a secondary activity to which they devote much less time and attention then they give to their principal business or profession. Consequently, they accord it much less time and study than it deserves and needs. The beginner needs to learn the rules for investing, and even those who have been in the market for years will find it worthwhile to review them periodically.

For the "average" investor who has neither the time nor the inclination to learn the basic principles and to follow the market closely, the investment fund is by far the most logical instrumentality. But for a man who already has substantial accumulations and feels that he has the required skill and sufficient time for buying and selling individual stocks and bonds, the following are a few basic investment precepts:

1. One should make every investment decision conform to his specific needs. A young investor with a high earning power is justified in assuming a reasonable degree of risk, but an older man with a lower earning power must look primarily for safety of capital. Each of these men, of course, must keep his program in tune with our changing economy. For example, even the older, more conservative investor must keep a stake in variable-dollar investments (common stocks) to assure maintenance of his purchasing power as a hedge against the continuing inflationary trend in our economy.

2. All investors should minimize risk as much as possible. Dollar-averaging (i.e., the investment of unvarying sums in one or several particular equities at regular intervals), balancing investments between fixed and variable equities, and restricting stock purchases to "quality" issues are good ways of accomplishing this objective.

3. Adequate diversification should be maintained at all times. Since it is scientifically impossible to select one, two or even three issues best suited to capital growth, broad industry diversification improves the investor's chances of maintaining a quality portfolio that will achieve reasonable profits.

4. Holdings should be geared to economic conditions. For example, bonds of distant maturity should be avoided in times of rising interest rates, but are excellent purchases when rates are steadily declining. When business is receding, staple, nondurable goods are best, and during boom periods, more cyclical, durable and capital goods offer the greater potential.

5. One should make an effort to anticipate general market trends. This can never be done with precision, but regardless of one's objectives, he should reduce his holdings in volatile common stocks when price-earnings multiples are such as to make it seem that the public has grossly overestimated the potentials of the issuing firms.

6. Purchase only after thorough investigation, never on the basis of tips or hunches. Although the scientific approach is less adventurous, it is the only sound one.

7. Insofar as is possible, buy when the price is right. One should compare the prices of the issues he is considering with those for comparable shares in the same field and with the market in general. One shouldn't buy at a price-earnings ratio that is considerably higher than that which currently prevails in the market as a whole.

8. No individual issue can be bought and put away. Keeping abreast of one's holdings is a constant task. Corporate fortunes change, making today's most attractive purchase a prime candidate for sale a few months or a few years later. One must study the company's annual and interim reports, and keep in touch with technological and economic developments.

9. Don't speculate! No part-time investor, and few professional speculators, can do it successfully. Invest for the long term, rather than for unpredictable short swings. Margin trading and the pur-

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chase of penny stocks or promotional situations invariably involve losses for the average investor.

10. Be patient! Don't reach for a stock that has already enjoyed a sustained rise, and don't allow technical market adjustments to panic you into selling an attractive security. Be realistic in your expectations. The seasoned investor has learned to "ride with the tide." The market is always there, and if a particular commitment disappoints one's expectations, the next one may do better—if he follows the rules.

The poor results of most individual investment programs can be attributed directly to a failure to follow these basic concepts and to the casual approach that the majority of investors take to the highly technical task of building an investment portfolio.

In Memoriam

AUDRA D. JAMES, M.D., 1897-1962

Dr. Audra D. James was born in Clarke County, Iowa, on May 14, 1897, but he attended high school in South Dakota, where his family had moved when he was quite young. Following his graduation, he spent 18 months in the Army Signal Corps as a private. On returning home, he enrolled at the University of South Dakota, where he subsequently received his bachelor of science degree and completed the first two years of his medical education. After a year of teaching, he went to Northwestern University for his final two years and his medical degree, and graduated in the top 10 per cent of his class. He was a member of Phi Chi fraternity.

Dr. James came to Iowa Methodist Hospital, in Des Moines, for his internship, in 1926-1927, and afterward was on the staffs of Iowa Methodist, Iowa Lutheran, Mercy and Broadlawns-Polk County Hospitals. In 1936 he joined the Naval Reserve, and beginning in 1941 served on active duty with the Navy. Two of those years, he spent at sea as senior medical officer on the seaplane tender *Tangier*. Then he resumed his membership in the Naval Reserve, and stayed in the organization until his retirement.

He was a member of the Iowa Obstetrical and Gynecological Society and of the Medical Forum, a study club, and was a past president of the Iowa Methodist Hospital staff.

Dr. James was a man who started numerous projects, and because of his curiosity and perfectionism carried them through to success. Following his internship, he was offered the directorship of the Pathology Department at Iowa Methodist. Later, he was an assistant to Dr. O. J. Fay. After several years of surgical training, he went to the Chicago Lying-In Hospital for training with Dr. DeLee. Then he was associated with Dr. F. B. Langdon, of Des Moines, in the practice of obstetrics. His hard work and his unwillingness to be satisfied with anything but the best placed him high in these various fields. Obstetrics posed difficulties for the men who practiced it in those days —ones with which the younger men in that field haven't had to deal. Not the least of these was that most babies were born at home. That meant more work and responsibility for the attending physician, and even though the doctor often went unpaid in those depression years, Dr. James maintained the same high standards of service that had been characteristic of him. During his career, he delivered over 6,000 babies.

Dr. James' career in medicine was very fortunately timed. With the rapid development of new drugs and the perfecting of various technics, he had the satisfaction of participating in medical progress. While I was an interne at Iowa Methodist, "Jim" was in the pathology laboratory, preparing some of the first saline solutions to be given intravenously there. The regimen needed improvement, and he kept working on various aspects of it, such as the pH of the solution, and as was being done at other hospitals, he insisted that the talcum in the rubber tubing had to be thoroughly removed. Eventually, intravenous solutions replaced the retention enema for fluid replacement. That was before the familiar glass flask and plastic tubing of today.

"Jim" was a private in the Army during World War I, and I never could decide whether it had been his experiences as a doughboy or just his insatiable curiosity that put him in the Navy during World War II. I suspect that it was the latter. He had many interests other than medicine, such as hunting, fishing, woodworking and contacts with people.

The strain of his practice began to tell on Dr. James in 1949, and his health was impaired. In 1954, he was forced to quit practice. It was a difficult step for him to take, but as one might have expected, he was able to redirect his attention to pursuits compatible with his physical capabilities. He passed away suddenly and quietly on Sunday, January 15, 1962. He died as he had lived, with his private affairs and business matters in perfect order.

Ordinarily, the title "doctor" before one's name is enough in itself to command respect, but Dr. James earned the respect of his patients, colleagues and acquaintances every day that he lived. He was a gentleman in the strictest sense. He never showed anger or disdain. He treated his associates with courtesy. He didn't have to be pardoned an occasional bitter word, for he never uttered one. On the other hand, he never was complacent about his work or about his friends. He had about him a decorum that touched all the people around him. He liked people, and because they were aware of that liking, they liked him in return. His passing, though not unexpected, was a shock and a sorrow to everyone who knew him.

—*Conan J. Peisen,* M.D.

Iowa Association of Medical Assistants

Opposition to King-Anderson

In October, 1960, the Iowa Association of Medical Assistants presented an emergency resolution to the House of Delegates of the American Association of Medical Assistants, meeting in Dallas, Texas, endorsing the opposition of the American Medical Association to the Forand Bill for Medical Aid to the Aged through the Social Security System. The resolution was adopted, and copies of it were sent to the president of the AMA and to each state medical society.

The Kerr-Mills Bill, passed by both houses of Congress and signed by President Eisenhower in the fall of 1960, enables states to guarantee health care to all needy and near-needy old people without making federal dependents of *all* of the elderly. It allows programs under which recipients of aid can choose their own doctors, and under which states can make contributions to the premiums on elderly people's health insurance policies, if they want to. The AMA and the AAMA have gone on record as endorsing that legislation.

Before sufficient time has elapsed to implement that plan fully, politicians have proposed another scheme for providing medical care to all Social Security beneficiaries, regardless of financial need. It is the King-Anderson Bill. In August, 1961, AAMA President Bettye Fisher testified before the House Ways and Means Committee in Washington, outlining the reasons why we disapprove of this method of financing health care for our senior citizens. The King-Anderson Bill, if adopted, would be the first step down the garden path to socialized medicine!

How can we help defeat this legislation? 1. The Woman's Auxiliary to the AMA offers medical assistant groups "Operation Coffeecup," which features a recording by Ronald Reagan discussing socialized medicine and King-Anderson legislation. 2. Your county medical society or its Auxiliary will be happy to provide a speaker to address your group on this subject. 3. You can study the issues, and discuss them with your friends and neighbors and with your employer. 4. You can write to your senators and congressman, urging them to vote against the King-Anderson Bill.

In writing, remember these points:

1. Address letters properly. Don't confuse a Senator with a Representative. The Iowa Senators are B. B. Hickenlooper and Jack R. Miller, and should be addressed as: The Honorable ....., U. S. Senator from Iowa, Senate Office Building, Washington 25, D. C. The Iowa Representatives are: Fred Schwengel, J. E. Bromwell, H. R. Gross, John Kyl, Neal Smith, Merwin Coad, B. F. Jensen and C. B. Hoeven. They should be addressed: The Honorable ....., Representative in Congress from the .... District of Iowa, House Office Building, Washington 25, D. C.

2. Be local. Tell how your community and your individual budget would be affected.

3. Be businesslike, and state your request and the reasons why you are against the proposal.

4. Be brief, polite and reasonable.

5. Be yourself. Use your own words and your own paper.

6. Be appreciative.

The AMA, 535 North Dearborn Street, Chicago 10, Illinois, has pamphlets opposing King-Anderson that it would like to distribute through your office or organization, and they are available free of charge. The titles are: "A Family Doctor's Fight Against Socialized Medicine," "Medical Aid for the Aged," and "America—Beware of the Welfare State."

—*Helen G. Hughes*

Annual Meeting of the IAMA

The IAMA annual meeting will be held at the President Hotel, in Waterloo, on May 4, 5 and 6, 1962. In addition to meetings of the Executive Committee and the House of Delegates, the following educational program has been arranged:

Saturday, May 5

9:45 a.m. Invocation
Welcome—Hostess President, Mrs. Sue Phillips
Greeting—IAMA President, Miss Waneta Christensen

10:00 a.m. FILM: "Sterilization Procedures in the Medical Office," courtesy of Wyeth Laboratories

11:00 a.m. PANEL DISCUSSION: Office Procedures That Concern the Medical Assistant—V. H. Plager, M.D., moderator
"The Doctor's Point of View"—C. D. Ellyson, M.D.
"Personality and the Patient's Point of View"—Mrs. Millard Mills
"Laboratory Technics"—Mr. John Chehak

12:15 p.m. LUNCHEON AND STYLE SHOW

1:45 p.m. "Public Relations"—Dr. Virgil Lagomarcino, director of teacher education, Iowa State University, Ames

2:45 p.m. "Legal Problems in the Medical Office"—Mr. Arthur O. Leff, legal adviser for University Hospitals, Iowa City

6:00 p.m. COCKTAIL HOUR: Courtesy of Blackhawk County Medical Society
6:30 p.m. MUSICAL TREAT—The Med-i-cats
7:30 p.m. BANQUET—T. L. Trunnell, M.D., master of ceremonies
"Satellites and Space Travel"—Willard J. Poppy, Ph.D., Science Department, State College of Iowa, Cedar Falls

Sunday, May 6

12:15 p.m. LUNCHEON
Presentation of Officers
Address—Donovan F. Ward, M.D., Dubuque

New Cost of Medical Care Booklet

Americans spend more today for medical care but buy more and better services than ever before.

Even though we're spending six cents of every dollar for health, we're able to purchase health restoring services that weren't available at any price 20 years ago.

An American Medical Association booklet has just been updated and is being offered now to help medical assistants explain to patients how some of the spectacular new technics in medicine are helping Americans live longer and get more from their health dollars.

Entitled "The ? Cost of Medical Care (1940-1960)," the booklet points out the following:

- A child born today can expect to live seven years longer than one born 20 years ago.
- Today new antibiotic drugs prevent pneumonia that used to kill one of every three or four persons it attacked.
- Low cost vaccines today can protect you against much serious illness.
- The average stay in a hospital today for an appendectomy is 5½ days whereas 20 years ago it would have been at least 14 days.

Another important factor brought out in this 16-page cartoon-style booklet is that physicians' fees have not risen as much as the prices of many other goods and services we buy. Between 1940 and 1960, doctors' fees rose only 95 per cent.

All medical costs are up 115 per cent since 1940, the booklet says, but food prices are up 150 per cent, public transportation has increased 145 per cent and men's haircuts are up 233 per cent.

To help pay for today's super medical care, Americans are buying more and more voluntary health insurance.

Latest statistics from the Health Insurance Institute show that for last year 75 per cent of all Americans and more than 53 per cent of those over 65 carry health insurance.

As members of the health team, you may be asked quite frequently about various aspects of medical care and health insurance. This little booklet will give you many of the answers you'll need.

Furthermore, if you would like to have a few copies for distribution in your doctor's office, write to Special Services Department, American Medical Association, 535 North Dearborn, Chicago 10, Illinois.

All-Out Federal Effort to Develop Cold Vaccines

An all-out effort to develop vaccines against the widespread respiratory infections—commonly grouped under the heading "the common cold"—was announced at the end of February by Surgeon General Luther L. Terry, of the U. S. Public Health Service.

The new program will bring together special facilities and skilled manpower to concentrate on the development of vaccines for human use, Dr. Terry said. Small pilot lots of vaccine will be evaluated for potency and tested for purity and safety. After successful preliminary trials, controlled evaluation will be extended through field trials. These steps will develop information on dosage, preferred methods of administration and technical improvement. The next step will be the testing of larger lots on young adults, with the cooperation of selected military or prison populations, and later on civilian populations.

The new program will be directed by Dr. Dorland J. Davis, associate director of the National Institute of Allergy and Infectious Diseases. A Board for Vaccine Development will be headed by Dr. Gordon Meikeljohn, head of internal medicine at the University of Colorado, and will include Dr. Floyd W. Denny, Jr., of the University of North Carolina; Dr. George G. Jackson, of the University of Illinois; and Dr. Walsh McDermott, of Cornell University.

A massive problem in adults, respiratory illnesses are even more pervasive in children. Each year in the pre-school age group, there are more than 20,000,000 respiratory episodes with fever. An estimated 83 per cent of all illnesses between birth and age 18 are caused by acute respiratory disease, according to a 30-year study by scientists at Harvard.

It is now possible to implicate known viruses in about 60 per cent of the serious respiratory illnesses of hospitalized children, and it is these viruses that will receive immediate attention in the Vaccine Development Program. Priorities have been set up to make prototype vaccines, both live and attenuated, with respiratory syncytial virus; parainfluenza viruses 1, 2 and 3; PPLO-Eaton agent; and adenoviruses 1, 2, 3, 4, 5 and 7, in that order of priority. These priorities have been chosen because RS viruses are believed to cause about 20 per cent of these illnesses; parainfluenza viruses 15 per cent; PPLO-Eaton agent 10 per cent; and adenovirus 10 per cent. In addition, the possibility of vaccine development against the enteroviruses and enterovirus-like agents incriminated in respiratory disease of adults will be explored.

WOMAN'S AUXILIARY
to the
IOWA MEDICAL SOCIETY

1962 Annual Meeting, Des Moines

Program Theme: "Speak Your Belief in Deeds"

MRS. BENJAMIN F. KILGORE, *Presiding*

Sunday, May 13

2:00-4:00 p.m. PRE-CONVENTION BOARD MEETING—East Room, Hotel Savery—State officers, councilors, county presidents and committee chairmen

6:30 p.m. DUTCH TREAT BUFFET—Johnny & Kay's, Fleur Drive at Leland—ALL board members, convention committee chairmen and husbands

Monday, May 14

8:00 a.m. to 4:00 p.m. REGISTRATION—Mezzanine, Hotel Savery

HOSPITALITY ROOM—East Room, Hotel Savery—Hostesses: Mrs. C. A. Trueblood, Indianola, District V, and Mrs. I. K. Sayre, St. Charles, District X—ALL physicians' wives welcome!

9:30 a.m. PROJECT BRUNCH—Terrace Room, Hotel Savery, honoring Mrs. William G. Thuss, the national president-elect, past state presidents and chairmen of standing committees

Hostesses: Presidents of central area auxiliaries

HOUSE OF DELEGATES

Call to order—Mrs. Benjamin F. Kilgore, Des Moines, president

Invocation—C. T. R. Yeates, D.D., Westminster United Presbyterian Church, Des Moines

Auxiliary Pledge

"I pledge my loyalty and devotion to the Woman's Auxiliary to the American Medical Association. I will support its activities, protect its reputation and ever sustain its high ideals."

Welcome—Mrs. F. C. Coleman, Des Moines, chairman of local arrangements

Response—Mrs. A. C. Richmond, Fort Madison, state president-elect

Presentation of Guests

Convention Announcements—Mrs. N. A. Schacht, Fort Dodge, area chairman

Convention Rules of Order—Mrs. G. A. Paschal, Webster City, parlimentarian

Roll Call—Mrs. F. L. Poepsel, West Point, recording secretary

Minutes of 1961 Annual Meeting—Mrs. G. I. Tice, Mason City, chairman

Report of the President

Reports of Officers and Committee Chairmen

Auditor's Report—Mrs. J. H. Matheson, Des Moines, state treasurer

Reports of County Presidents

"Homemaker Service in Polk County"—Mrs. A. B. Phillips, Des Moines

"Rural Health Program in Iowa"—Mrs. E. A. Larsen, Centerville, regional rural health chairman, Woman's Auxiliary to the AMA

MEMORIAL SERVICE—Mrs. R. L. Wicks, Boone

Nominations for 1963 Nominating Committee, and Presentation of Election Committee

Election of 1963 Nominating Committee

WORKSHOP: "Our Deeds Speak"—Moderator, Mrs. L. V. Larsen, Harlan, program chairman. Panel members: Mrs. H. C. Merillat, Des Moines, Mrs. D. H. King, Spencer, Mrs. W. C. Shinkle, Des Moines, and Mrs. S. P. Leinbach, Belmond

ADDRESS—Mrs. William G. Thuss, national president-elect

12:30 p.m. Selections from "The King and I"—Pat Valentine

1:00 p.m. SURPRISE—A FREE AFTERNOON!

Tuesday, May 15

8:00 a.m. to 12 noon REGISTRATION—Mezzanine, Hotel Savery

HOSPITALITY ROOM—East Room, Hotel Savery

Hostesses: Mrs. I. K. Sayre, St. Charles, District X, and Mrs. C. A. Trueblood, District V, Indianola

9:30 a.m. HOUSE OF DELEGATES

Call to order—Mrs. Benjamin F. Kilgore, president

Roll Call—Mrs. F. L. Poepsel, recording secretary

Presentation of 1962-1963 Budget—Mrs. E. A. Vorisek, finance chairman

Election instructions—Mrs. G. A. Paschal, parlimentarian

Report of Nominating Committee—Mrs. D. C. Wirtz, Des Moines, chairman

Election of officers

Election of delegates to National Auxiliary Convention

Revisions of Constitution and Bylaws—Mrs. R. E. Hines, Des Moines, chairman

Resolutions Committee Report—Mrs. E. A. Larsen

Convention Courtesy Resolutions—Mrs. G. I. Tice

New Business

Installation of Officers—Mrs. William G. Thuss, national president-elect

Report of Registration Committee—Mrs. R. H. Foss, Des Moines, chairman

11:00 a.m. "Our Auxiliary"—G. H. Scanlon, M.D., Iowa City, president-elect of the Iowa Medical Society and chairman of the Woman's Auxiliary Advisory Committee

Report of the administrative secretary—Mrs. Hazel T. Lammey

11:30 a.m. Recess

12:00 noon LUNCHEON—honoring retiring president, Mrs. Benjamin Kilgore, and 1961-1962 officers—Terrace Room, Hotel Savery

Mrs. Louis Goldberg, Des Moines, presiding

Table hostesses representing District IX, central area

Luncheon Invocation—Mrs. Daniel Glomset, Des Moines, accompanied by ———

Guests of honor:

O. N. Glesne, M.D., president, Iowa Medical Society

G. H. Scanlon, M.D., president-elect, Iowa Medical Society and chairman of the Auxiliary Advisory Committee

C. W. Seibert, M.D., member of the Advisory Committee

J. E. Houlahan, M.D., member of the Advisory Committee

R. F. Birge, M.D., secretary, Iowa Medical Society

E. R. Annis, M.D., Miami, Florida

D. L. Taylor, executive director, Iowa Medical Society

Hazel T. Lammey, administrative secretary, Woman's Auxiliary to the Iowa Medical Society

Mrs. R. A. Anderson, Iowa City, president, Woman's Auxiliary to the Iowa Chapter Student American Medical Association

Presidents of Iowa Interprofessional Association Auxiliaries and other guests

Presentation of Essay Contest Awards—O. N. Glesne, M.D., president, Iowa Medical Society

Presentation of Volunteer Health Service Award—Mrs. E. M. Honke, Sioux City, Community Service chairman

Inaugural Address—Mrs. A. C. Richmond, Fort Madison

Presentation of Past President's Pin—Mrs. J. A. Downing, Des Moines

2:00 p.m. SPEAKER—Edward R. Annis, M.D., Miami, Florida

2:30 p.m. BLACK HAWK COUNTY AUXILIARY FASHION FANTASY—Moderator, Mrs. R. F. Nielsen, Cedar Falls

3:00 p.m. ADJOURNMENT

3:30 p.m. POST-CONVENTION EXECUTIVE COMMITTEE MEETING, East Room, Hotel Savery

7:00 p.m. BANQUET—Terrace Room, Hotel Savery

9:00 p.m. CADEUCUS CAPERS—Benefit Dance for the Woman's Auxiliary Health Educational Loan Fund

HOSPITALITY ROOM
Monday—8:30 A.M.-4:00 P.M.
Tuesday—8:30 A.M.-12:00 Noon
ALL PHYSICIANS' WIVES WELCOME

Annual Meeting Guest

Mrs. William Thuss, of Birmingham, Alabama, was named president-elect of the Woman's Auxiliary to the American Medical Association at the 38th Annual Convention in June, 1961, in New York City.

Mrs. Thuss has served as president of both her county and state Auxiliaries. In the National Auxiliary, she has just completed a term as first vice-president and membership chairman and, prior to that, had served as a regional vice-president.

She has been associated with many civic and health groups in Birmingham over the years. An organizer and first president of the Visiting Nurse Association, she also has been active on the board of Mercy Home, a child care institution, and the Jefferson County Coordinating Council.

Among her other activities are a special committee on juvenile delinquency of Jefferson County Association for Mental Health, education committee of the local unit of the American Cancer Society, charter member of the University Hospital Auxiliary, and vice-president of the Radio-TV Council.

Mrs. Thuss, the former Louise Benedict, was born in Nashville and graduated from Ward-Belmont and Vanderbilt University. Dr. Thuss is in industrial practice. He has devoted his life to occupational medicine and surgery, and is director of the Thuss Clinic, which specializes in that field. Two of their three sons also pursued medical careers.

The leisure-time activities of Mrs. Thuss include reading, swimming, fishing and cruising on the Tennessee River.

Our President Says—

"It is required of a man that he should take part in the actions and passions of his times, at the peril of being judged not to have lived."
—Justice Oliver Wendell Holmes

We have had an opportunity and a challenge, these past several months, to indicate to our acquaintances and to our Congressmen that we, as citizens of the United States, are a dedicated group of women with a rightful purpose, and are not fearful to express our beliefs or to oppose the King-Anderson Bill, HR 4222. Why have so many of us neglected to take a stand? Let's not deceive ourselves that we can avoid playing a part in solving the problems of our times and in preserving our freedoms. We must express our beliefs, lest we be judged not to have lived!

Winter in Iowa has been of the old-fashioned kind, with many inches of snow on the ground since December, but the warm, sunny days of April are brightening our outlook. We are looking forward to the Annual Meeting of the Woman's Auxiliary to the Iowa Medical Society, May 14 and 15. You have observed the program highlights in this issue of the WOMAN'S AUXILIARY NEWS, and each of you will want to attend some or all of the sessions.

Mrs. Wm. G. Thuss, of Birmingham, Alabama, the president-elect of the Woman's Auxiliary to the American Medical Association, will be our national guest this year, and will bring an enlightening message to us.

We take pride in welcoming three new county Auxiliaries and 14 new members-at-large to our state family. The newly organized county Auxiliaries are Dickinson, Marion and Scott. The new members-at-large are: Mrs. Paul Cunnick, Davenport; Mrs. Clyde F. Deal, Elkader; Mrs. John R. Camp, Britt; Mrs. R. V. Daut, Davenport; Mrs. A. B. Kuhl, Jr., Davenport; Mrs. D. J. Sheehan, Cherokee; Mrs. L. S. Miltner, Davenport; Mrs. R. E. Olsen, Muscatine; Mrs. R. M. Wallace, Algona; Mrs. L. E. Weber, Jr., Wapello; Mrs. J. L. Ehrenhaft, Iowa City; Mrs. M. L. Mosher, Iowa City; Mrs. I. K. Sayre, St. Charles; and Mrs. E. E. Lauvstad, Osceola.

The Health Educational Loan Fund Committee has announced that our annual benefit dance will take on a new look this year. Be alert for the new face!!

You are all cordially invited to attend the 39th Annual Convention of the Woman's Auxiliary to the American Medical Association, in Chicago on June 25-28, inclusive. Be sure to notify our recording secretary, Mrs. F. L. Poepsel, if you are planning to attend and would enjoy serving as a delegate. She will present the list of such Auxiliary members to the House of Delegates on Tuesday, May 15, and from that list the delegates who are to represent Iowa will be elected. You can experience real inspiration for Auxiliary work by attending the National Convention.

The yearly reports from those of you who are county presidents and district councilors will reflect the efforts of the Auxiliaries in your respective areas. Regardless of how small a group yours is, it has a responsibility for doing its part. Our Auxiliary chain is only as strong as are its individual links! Let's each of us help to preserve the freedom of her husband's profession!!

Your State Auxiliary officers extend a cordial invitation to all doctors' wives to join with them in making the 1962 Annual Meeting an outstanding success. I hope to meet many of you at that time.

—MRS. BENJ. F. KILGORE
President

Community Action for Mental Health

This year, Mental Health Month will be observed from April 9 to May 5, with "Community Action" as the theme. The Woman's Auxiliary to the AMA is requesting the cooperation of each county Auxiliary in every state in focusing the attention of the public on the problems of mental health at national, state and local levels.

Since more than 50 per cent of all hospital beds are occupied by the mentally ill, we as doctors' wives must assume leadership in meeting this serious health problem. We should evaluate the services available in our areas, the progress that has been made, and the opportunities for further improvement that can readily be utilized.

This is an excellent time at which to use the various news media in publicizing the Auxiliary's activities in the field of mental health.

The Iowa Mental Health Authority has furnished the Auxiliary with a new supply of the "Milestones to Marriage" pamphlets for use in senior high schools. They may be obtained by addressing requests to me. There is no charge for this series.

MRS. SELIG M. KORSON
Mental Health Chairman
P.O. Box No. 11, Independence

In Memoriam

Mrs. Clarence Denser, Sr., a charter member of the Marion County Auxiliary, passed away at Mercy Hospital, Des Moines, on February 21, 1962, following a several months illness. Mrs. Denser was the mother of Dr. Clarence Denser, Jr., a Des Moines pathologist. Dr. Clarence Denser, Sr. is a member of the staff at the Veterans Administration Hospital in Knoxville.

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the JOURNAL, 529-36th Street, Des Moines 12, Iowa.

COUNTY AUXILIARIES

MAHASKA

The Mahaska County Medical Auxiliary met on Tuesday, February 13 for a one o'clock luncheon at the Downing Hotel. Mrs. Kenneth Lemon presided at the buisness meeting which followed.

The Auxiliary has been asked to back the "Get-Out-The Vote" campaign for the Mahaska County Hospital bond issue.

The Auxiliary adopted a resolution opposing H.R. 4222 and will forward it to the Iowa senators and representatives, the members of the House Ways and Means Committee and other important contacts.

Our district councilor, Mrs. L. F. Catterson, enlisted our support for arranging centerpieces and serving as hostesses for the president's luncheon at the Annual Meeting of the Auxiliary in Des Moines in May.

—MRS. ELLIS DUNCAN, *Secretary*

MARION

The Woman's Auxiliary to the Marion County Medical Society held a one o'clock luncheon at the Maple Buffet, Knoxville, on Tuesday, March 6, 1962, with nine members present.

This meeting was held in place of the February meeting which was postponed due to the weather. The regular March meeting will be held March 20.

Mrs. D. A. Mater, president, presided at the business meeting. A letter from Mrs. L. F. Catterson, ninth district councilor was read in regard to the luncheon to be held at the state meeting in May.

Mrs. Clyde Nicholson, a charter member of the Marion County Auxiliary moved to her new home in Des Moines during the latter part of February. Dr. Nicholson is on the staff at the Veterans Administration Hospital in Des Moines.

—MRS. T. D. CLARK, *Secretary*

MARSHALL

The Marshall County Medical Auxiliary met March 6 at Stone's Restaurant, for a dinner and program. The guest speaker was Dr. Jared Nesset, a member of the American Association of Ethical Hypnotists. Miss Garrah M. Packer, a retired school teacher who has been continuously active in volunteer Red Cross work for over 40 years, was named Marshall County's "Woman of the Year" in the health field, and her name is being submitted to the state committee.

Another matter of importance at this meeting was the action taken to give $15 to each of two projects, the Health Educational Loan Fund and the County Mental Health Center.

Mrs. Jack Crandall and Mrs. L. O. Goodman volunteered to take the pilot series of twelve lessons in the Civil Defense Program.

Mrs. Rufus Kruse and Mrs. Earl Keyser were appointed to the nominating committee for the new year.

The members were given the names and addresses of their Congressmen, so that they might write them stating their opposition to health care for the aged under the social security program as set out in the King-Anderson bill.

POLK

The Woman's Auxiliary to the Polk County Medical Society held a benefit bridge and canasta party at the Des Moines Golf and Country Club on February 9, 1962. A dessert luncheon was served at 1:00 p.m. Pastel-colored hyacinths were given as table prizes, and they added some spring-like beauty to the festive occasion. Several door prizes were also awarded.

About 180 members and guests were welcomed by our president, Mrs. Donald H. Kast, at this annual event. Proceeds will be used for the Future Nurses Clubs in the high schools in Polk County and for the Auxiliary's health projects. Mrs. E. A. Vorisek and Mrs. J. H. Dickens were the co-chairmen.

CADEUCUS CAPERS

Tuesday, May 15—Banquet and Dance
Des Moines and Terrace Rooms—Hotel Savery

Benefit Dance for

Woman's Auxiliary Health Educational Loan Fund

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JOURNAL of The IOWA MEDICAL SOCIETY

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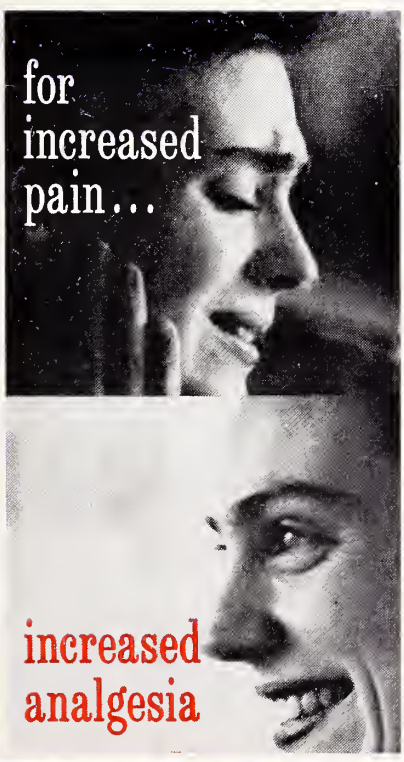

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REFERENCES: (1) Roseman, E.: Neurology **11**:*912, 1961. (2) Bray, P. F.: Pediatrics* **23**:*151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: M. Clin. North America* **42**:*317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) Ibid.: Postgrad. Med.* **20**:*584, 1956. (7) Merritt, H. H.: Brit. M. J.* **1**:*666, 1958. (8) Carter, C. H.: Arch. Neurol. & Psychiat.* **79**:*136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.*

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The Professional Person's Place In Public Affairs

A Medical School Commencement Address

WALTER H. JUDD, M.D.

Representative in Congress From the Fifth District of Minnesota

IT IS INDEED a great honor and privilege to be invited to speak at the commencement exercises of the various schools of the College of Medical Evangelists, which for more than half a century has been so successfully training men and women in the healing arts, to serve God and to minister to the needs of man—both in this state and nation and throughout the world. You who are being graduated today will find, I am sure, that your *alma mater* has equipped you well with all that any medical school can give its students of scientific knowledge and technical skills. I have no concern regarding the excellence of your training or the high quality of your professional abilities. If there is any reason for concern, it is more likely to be with regard to the quality of your *citizenship*. For that must be of a higher order than my generation has demonstrated, or there may not long be a society in which you will have opportunity to use with success and satisfaction the knowledge and skills you have worked so long and hard to acquire here.

Our professions are going through the latest of several transitions experienced in the last century. Originally, the doctor's main concern was with therapeutics. Since he didn't know too much about disease processes, it really amounted to treatment of symptoms.

Then Loeffler discovered the diphtheria bacillus, and Koch the tubercle bacillus. Virchow and others began doing autopsies systematically. It was proved that most symptoms were the result of demonstrable pathologic processes in various organs. The doctor began to shift his attention from results to causes, from therapeutics to diagnosis, from symptomatology to etiology.

This was the period in which I was trained—40 years ago. It was called the era of therapeutic nihilism. We concentrated our attention so much on the disease that we almost forgot the patient.

Then, with better understanding of how diseases were caused and communicated, a third emphasis naturally developed—preventive medicine. The good doctor had to be an expert not only with the stethoscope and the microscope, but with the immunizing needle.

In more recent years, there has been an increasing recognition of the effects of mind and emotions on physiologic processes—and vice versa. The doctors who only took care of the physiologic processes were losing too many patients to those who paid attention also to people's emotions, and gave them something to have faith in! Psychosomatic medicine belatedly came into its own.

Now we have entered a fifth stage in this gradual metamorphosis. Now the doctor must give more attention to public affairs, or he will lose his professional freedom. During the depression of the 1930's, the hot war of the 1940's and the cold war of the 1950's, our government steadily expanded until it now reaches into everybody's life and everybody's pocketbook almost every hour of every day. How and under what circumstances you are to practice your professions, what you will be able to earn, how much of what you earn you will be permitted to keep, and what you will be able to do with what you retain, depend more than ever before on what happens in Washington.

But decisions in Washington depend more than ever before on what happens in Cuba, or Korea, or Laos, or West Berlin.

What happens in those places depends on what men decide in the Kremlin or in Peiping.

And what they decide in the Kremlin or Peiping depends to a greater degree than we realize, I think, upon what *we* say and do here in the United States—or upon what they *think* we will do or not do.

Nobody needs to be apologetic about discussing government today. For unless we handle our affairs in such ways as to maintain freedom and

---

Dr. Judd made this presentation at the graduation exercises of the College of Medical Evangelists on June 11, 1961. The school has since been renamed Loma Linda University.

peace in the world, there is no gain in America—medical, social or otherwise—that will long be worth much to anybody.

For conceivably, we could solve all our domestic problems, we could have better medical care more equitably distributed, we could meet our housing needs, our education needs and our old-age security needs, and get our labor-management problems settled, but unless we manage our political and economic relations with the rest of the world better than we have in the past, so that we can win the cold war and end the prolonged and exhausting expenditures for defense, none of the domestic gains can endure. If we *don't* spend more and more for arms, we invite insecurity—and disaster. If we *do* spend more and more for arms, and for everything else that has been promised, too, we insure resumed inflation—and disaster. Either way, disaster! That is why Mr. Khrushchev smiles with confidence as he says, "We will bury you!"

CIVIC ACTIVITY FOR THE BENEFIT OF PATIENTS

Your generation must play a more active role in public affairs than medical people generally have, for at least three reasons.

First, you must do it in order to ensure your future as professional men and women, and to safeguard the conditions under which you can use to best advantage your knowledge of disease and your skill in helping the sick.

Second, you must do it in order to work toward betterment of environmental conditions that affect your patients adversely. The man who comes to you with arthritis or hypertension frequently has something else wrong with him too. Perhaps he has a boy in Laos or Korea, or in East Germany; or his business is in difficulty; or inflation is eating up his life's savings; or he is apprehensive about atomic fallout and sputniks. He knows his country is in deep trouble. He has legitimate anxieties. If you are really going to help him deal with his ulcers, or his insomnia, or his hyperthyroidism, you will have to pay more attention to the impact on him of his world environment, and get yourself into a position where you can influence that environment in the direction of conditions more favorable to your patient's well-being.

Third, you have to pay more attention to public affairs in order to ensure your future as citizens. Before any of us are doctors, or businessmen, or lawyers, we are citizens of this Republic. All of us are, or will be, taxpayers. Most of us are parents. All of us are trustees of a great and noble heritage of freedom—trustees of a political and economic order which made it possible for even those of you who came from humblest circumstances, as I did, to get the expensive education which we could scarcely have dreamed of in most countries of the world.

What we know as doctors about the practice of the healing arts should and must influence our thinking and our activities as citizens. But our obligations as citizens must also influence our thinking and conduct as doctors.

Generally we discuss what effect the government's actions may have upon us. It is equally essential that we give thought to what effect we can and must have upon government. For instance, doctors almost to a man are opposed to socialized medicine, and by socialized medicine I mean tax-supported medical services provided and operated by the government. Most people, I fear, assume that we oppose socialized medicine because we think it would hurt the *doctors*. They think we are a closed-shop union that wants to have complete control of medical practice in order to promote our own selfish interests. We have failed to show the public that our opposition to socialized medicine is not because it would hurt us, but because it would hurt the *public*.

As a matter of fact, socialized medicine wouldn't hurt most medical people financially. The superior doctor can get ahead under any system. The poor or even the average medical person probably would be about as well off financially under socialized medicine as under free competition. Furthermore, he wouldn't have to worry. He could get a fairly well-paid, government-supported job right after graduation—or, in the case of doctors, after internship—and continue in that job for the rest of his life.

Those who are more active in public affairs than we are have taught the public to believe that socialized medicine would give more and better medical care for less cost. Doctors know it would give less and poorer medical care at greater cost.

So, it is not because we are doctors that we oppose socialized medicine; it is because of what we know as doctors about the practice of medicine. But it is not enough for us to be right. We must tell and sell our reasons to the public far better than we have told them in the past. We can't do that by just talking to each other at medical meetings. We have to reach the public and the politicians, not to put something over on them, but to help them understand the situation so that no one else can put something over on them.

COMMUNISM RESEMBLES CANCER

But doctors must play an even larger role in public affairs. For example, who else can so well understand, and who else can contribute so much to helping other citizens understand the malignant nature of the communist process which, in the last 40 years, has spread its blight over one-third of the world and which threatens the remainder, including our own free America? If we fail here, we fail everywhere.

For there *is* on this planet a conspiracy dedicated to our destruction. The heritage of freedom

which enabled you to get where you are today, and will permit you to decide tomorrow where, how and with whom you are to practice, and what organizations you are to join, ranging from medical societies to political parties—that heritage is under cold, determined and increasingly successful attack on every front.

The thing that makes a cancer bad is not its size or its location; it is the lawless way in which it grows. In practically all respects, the communist movement behaves like other malignancies. It has rejected the normal laws of growth, and expands by lawlessly encroaching on tissues that don't belong to it. Sometimes it is by direct invasion of an adjacent organ—or an adjoining country like Finland, Korea, Hungary, Tibet or Laos. Or it extends more stealthily by metastasis into other organs, transplants of lawless cells, lodging and working within other countries to disrupt their economy, subvert their thinking, weaken their institutions, in preparation for takeover.

To deal successfully with the present malignant threat to our survival, how urgently our country needs the kind of mind which your medical college has given you!

First, it is the autopsy type of mind. You have been trained to study the mistakes of the past and admit them openly, in order to learn from them. The doctor does autopsies not to cover up, but to correct. In government, the prevailing rule is not to correct, but to cover up. Each of the seven conferences to which we have gone since World War I, without careful and thorough agreement on essentials in advance, has led to losses for freedom. Yet how many people in public affairs today, without your kind of mind, are urging our government to try once more the same pattern that has always failed.

We also need in public affairs more men with the biopsy type of mind. When you look through a microscope and see some abnormal cells that have broken through the basement membrane in violation of normal laws of growth, you don't say, "Well, it's cancer all right, but it's in a remote organ. Let's wait and see if it spreads." You *know* it will spread unless you find ways to stop it at once and where it is. But during the last two decades how many among our people have said, "Isn't it too bad what Hitler is doing to the Jews?" ". . . what the Japanese are doing to the Chinese?" or ". . . what the communists are doing to the Hungarians?" But then they have said "Those places are a long way off. Let's see if we can't persuade the lawless elements to confine their efforts to the areas presently involved, and not spread them to us."

Could Hitler be malignant to the Jews but be benign toward us? Can communism be malignant to others—Tibetans, Laotians, Cubans—but be benign toward us?

The doctor knows that in dealing with a malignant process there can be no end to the struggle until one or the other prevails. That does not mean that we must drop bombs on it. It does mean that as a minimum we have to isolate it by cutting off its sources of supply and its means of transmitting its lawless cells to other areas. It means we must prevent its winning new victories, such as expanded trade or acceptance into respectable society.

While fighting the malignant process, the doctor knows that he must also build up the strength and health of the rest of the organism—the countries and peoples that are still free.

We can't win just by outwaiting the enemy; we must outwit and outwork him!

We have been taught that almost the only unforgivable mistake for a physician is to underestimate the possible seriousness of a patient's illness. If we overestimate it, we are guilty of nothing but a little undue caution, but if we underestimate it, the patient may shortly be dead. The mistake is unforgivable because it is irretrievable.

Likewise, in the world struggle between lawless and law-abiding forces, it would be an unforgivable mistake to fail to understand the malignant character of the communist new growth—or to underestimate its strength, its determination, the dangerous inroads which it has already made into the organs of our nation and into the thinking of our people, without their realizing it. We must not make that mistake ourselves—and it is our duty not to let our fellow citizens make it.

OUR FUNDAMENTAL BELIEFS ARE CHALLENGED

For our patterns of thought and life are being challenged in the most fundamental area of all—our basic assumptions as to the nature of man. Some years ago I heard the eminent Lebanese philosopher Dr. Charles Malik, then president of the United Nations General Assembly, say that when the Conference on Human Rights convened in Paris after World War II, the delegates spent several months trying, in vain, to agree on what man is. For how could they declare what the rights are to which a human being is by nature entitled until they decided what a human being is?

Our society was founded by men who wrote as their concept of the nature of man, "We hold these truths to be self-evident, that all men are *created*. . . ." They believed that there *is* a Creator; that man is His child and therefore a part of the Creator. That is, man has in him qualities and capabilities different from those possessed by any animal; he has something of the divine in him. He has the capacity to make moral judgments and independent decisions based on those judgments.

The philosophy and faith of the communists rejects all this. They deny that there is a Creator; that there are such things as moral laws, such

things as right and wrong, truth and falsehood, good and evil; or that man is, by nature, a moral being. They insist that he is merely the smartest of the animals, the animal with the largest brain —no more.

They believe, therefore, that just as the Russian physiologist Pavlov demonstrated that young dogs can, by separation from older dogs and by consistent control of their environmental stimuli, be conditioned to make predictable, unvarying, automatic responses, so with young human beings. They believe that you and I *think* that we have consciences and the capacity to make moral judgments and independent decisions, only because we have been taught that we have such capabilities.

Thus, it is their mission to "liberate" us from what they believe to be our errors. To do that, they must first conquer the whole world, so that they can then abolish the institution of private property. It is private ownership of property, they believe, that gives man the notion that he is a distinct individual with "unalienable rights" and importance as a person. They must, therefore, remove the child from his parents' control or guidance—as is done in Red China—before the parents can communicate to him the "false" ideas regarding man's nature which the parents in their childhood received, in turn, from their parents. The state will then, by rigidly controlling the child's environment and what goes into his mind, condition the child to seek nothing for himself, to be cooperative, and to desire only to serve the masses. Because no one will then try to take anything from anyone else, there will be no more clashes. Policemen will not be needed. The state will wither away, and the perfect society—with "peace and friendship"—will be established everywhere.

Some in the free world fiercely object that they can't go against human nature. The communists reply that there is no such thing as human nature —that human nature is what you make it. Capitalism, they say, makes it selfish, but communism will make it selfless. Therefore, capitalism inevitably leads to clashes and war; communism, and only communism, they insist, can lead to peace.

You and I believe that man is more than a physical and physiologic organism. We believe he has in him, as an inherent part of his nature, something intangible called spirit or soul—something divine. We believe, as doctors, that it has very great influence on the state of his health, and on the success of our efforts to cure his diseases and relieve his sufferings.

We believe that to be good medical practitioners, we must treat every patient, not just as a physical mechanism with heart, lungs and liver needing to be put back in order periodically, like carburetors and spark plugs. We must treat each individual as a distinct person, a whole person—body, mind and spirit. And the unique, the most precious, the most vital thing about the human being is the human spirit.

This world conflict is not an old-fashioned struggle for the control of land; it is for control of MAN—the mind of man, the soul of man, the whole of man. No one of us dares fail to play his full role in this total conflict—as a medical person, as a citizen, as a human being.

Never did Americans face such a fundamental challenge to the ultimate values of life. Never did we have to think so deeply and work so hard as we shall have to in the years just ahead if we are to live in dignity and usefulness—or even to live at all.

WHAT OTHER NATIONS WANT IS NOT WHAT THEY NEED

I have said that we must not underestimate the deadly character of the communist disease. It is equally essential that we not underestimate the strength of our own philosophy and faith—the basic soundness of the American system and its attraction and appeal to the oppressed millions of the earth.

What the world generally *wants* most from the United States is our wealth, our goods, our tools. But those are not what it *needs* most, for those are all results. What the world needs most from us is the secret that produced those results.

The secret of our wealth is an economic system which provides opportunity and incentive for men to create, to produce, to expand, in order to improve their condition.

That economic system came from a political philosophy—the right of the individual. And from what did that political philosophy come? It came from a religious faith that put first the dignity and worth of every human being as a child of God.

We shall not succeed in preserving the material results unless we revitalize and strengthen the spiritual roots from which they came. In short, Christians will have to demonstrate as strong and deep a faith in their fundamental tenets as the communists have in theirs, and they will have to work as hard and as skillfully to spread the truth as the communists work to spread their falsehoods.

We must work both as individuals and as members of the groups that we join and support because they are dedicated to the causes in which we believe—religious groups, civic groups, political groups.

THE ANSWER: ENTER POLITICS!

So often one finds medical people unwilling—too preoccupied—to work in political organizations. Yet if you are to expend your influence in public affairs, you must participate in politics, for it is politics that determines government—the gov-

ernment which today determines the conditions of your lives.

Therefore, join the political party that you think is nearest right on the most important issues. You won't agree with it on everything, any more than you agree on every issue with your classmates, or with your medical society, or even with your wife. But you don't pull out of those associations whenever you disagree. Rather, you stay in and try to move your associates in the direction you believe is right.

Just so, associate yourself with the party having principles and programs with which you find yourself in closest agreement, and work in and through it to help select and then to help elect good men and women to public office at every level of government.

In addition, more medical people have to be willing to be candidates for public office. That's tough, I can testify. But both patriotism and good sense require that all of our citizens, no matter how specialized their training, be willing to sacrifice their careers to go into public service in peacetime, just as their sons are called upon to sacrifice their careers to go into the armed services in wartime.

Only as you do these things—and not just discuss them—will there be hope. The most wonderful thing about our country—the thing which we must preserve at all costs—is the privilege we have of changing the things we don't like. Thank God our system is such that whenever conditions are bad, or don't meet our standards, we can correct them—if we will work in public affairs.

The way to begin is with ideas and principles, to get persons and parties committed to them, translate them into programs, and put them into practice.

CONCLUSION

Please don't think I am trying to lecture you today, or imagine I have all the answers. Rather, I am appealing to you for help. This world patient is too sick to be cured without the intelligent and dedicated effort of all of us. It particularly needs the leadership of men and women who have the qualities of mind and heart of the good physician, nurse or therapist.

The tests ahead will be harder than those you have just completed. But who is so well equipped to mold the attitudes and actions of our people as you who today leave the classrooms and clinics of the College of Medical Evangelists to take up your roles throughout our land and the world as physicians, dentists, nurses, technicians and therapists, and as citizens and trustees—strong, well trained, confident, competent!

I congratulate you, your families, the communities into which you will go—and our country.

Quackery Booklet Ready for Distribution

The entire medical profession is familiar with the AMA's continuing war to stamp out quackery. The claims of pseudo-physicians and their worthless services, nostrums, gadgets and "therapeutic programs" cost the American public over a billion dollars yearly, plus an incalculable amount of needless pain and suffering.

Last October, to coordinate and review anti-quackery efforts, the AMA and the U. S. Food and Drug Administration sponsored a joint Congress on Quackery in Washington, D. C. The resultant publicity and public response was overwhelming and showed that quackery can be licked when an aroused and aware citizenry confronts it.

Public education is the key weapon for use in putting the quacks out of business. A new 15-page booklet, containing cartoon illustrations in color and entitled "Beware of 'Health' Quacks," is one of the many after-effects of the Congress. It does an excellent job of exposing the medical pitchmen. Its price is 5 cents per copy, and it is hoped that physicians will order supplies of them for use in their local anti-quackery campaigns.

Orders should be placed with the AMA Department of Investigation, 535 North Dearborn Street, Chicago 10.

Symposium on TB and Other Pulmonary Diseases for GP's

The eleventh annual Symposium for General Practitioners on Tuberculosis and Other Pulmonary Diseases will be held at Saranac Lake, New York, July 9 through 13, under the sponsorship of the American Thoracic Society (formerly the American Trudeau Society), the New York State Academy of General Practice, and the College of General Practice of Canada.

A faculty of 33 outstanding authorities on tuberculosis, pulmonary neoplasms, bronchitis, emphysema, and non-tuberculous pneumonias is being assembled for this course. The recreational facilities of the Saranac Lake area make it an ideal place for physicians to bring their families for a vacation.

The registration fee is $75, and a deposit of $10 should accompany the application. Information on housing will be sent to physicians on receipt of their applications. AAGP allows 27 hours of Category I credit for the course.

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the Journal, 529-36th Street, Des Moines 12, Iowa.

Organ and Tissue Transplants at AMA Chicago Meeting

Progress of medical science in replacing defective organs and tissues with healthy "spare parts" taken from donors will be reviewed and evaluated at the American Medical Association's 111th Annual Meeting in Chicago, June 24-28.

This program, which will contribute scientific understanding to the underlying problems of tissue transplantation, will be covered in a half-day session by five physicians who have pioneered in this field of experimental surgery and research in biochemistry and immunology. The doctors are: David M. Hume, of the Medical College of Virginia, Richmond; Ernst J. Eichwald, director of the Laboratory for Experimental Medicine, Montana Deaconess Hospital, Great Falls; Joseph E. Murray, Boston; Donald A. Roth, Veterans Administration Medical Center, Wood, Wis.; and William F. Enneking, chief of orthopedic surgery at the J. Hillis Miller Health Center, University of Florida at Gainesville.

The organ transplantation program, sponsored by the A.M.A. Section on Orthopedic Surgery, will be held on Wednesday afternoon, June 27, at McCormick Place. In announcing the program, Dr. John C. Wilson, Jr., of Los Angeles, secretary of the A.M.A. Orthopedic Section of the Scientific Assembly, said, "The advisability and feasibility of organ transplantation is presently an exciting frontier in medical science, and the committee is delighted to have these five pioneering physicians share their knowledge with all members of the medical profession." Dr. Wilson said that much of the afternoon program would deal with the kidney, an organ eminently suited for transplantation. The elective surgical removal of one kidney involves a definite although minimal risk, and the surgical connection of the blood vessels of the donated kidney to the vessels of the recipient is generally not prohibitively difficult.

Dr. Murray and his colleagues from Peter Bent Brigham Hospital have so far performed 16 kidney transplants between identical twins, 15 of which were initially successful. One patient died of a technical failure. Two subsequently died within a year after developing the same disease in the transplant, leaving 13 patients now living and well on transplanted kidneys from their identical twins. All of the donors are living and well except for one who was killed accidentally at work three years after donating his kidney to his twin. His recipient is still alive and well.

Although kidney transplantation between identical twins has proved fairly successful in many medical centers, the surgical achievement is not the complete answer to kidney problems. To prevent a transplanted kidney from dying in a patient other than a twin, scientists approached the immunologic problem in several ways, one of which involves total body irradiation. Since it is antibodies that destroy transplanted kidneys, they reasoned, why not try to prevent their formation within the body. By administering massive, near-lethal doses of radiation they found that it temporarily suppresses the body's means of producing antibodies. In short, the radiation weakens the body's ability to defend against foreign tissue.

By applying this technique, a few kidney transplants have been successful with patients in apparent good health. At least three patients in the world, two in France and one in a series at Peter Bent Brigham, are now living with homotransplanted kidneys. "These successes highlighted in a sea of failures could be the result of chance genetic similarity," Dr. Murray said in discussing the A.M.A. program. "They indicate a need for broad study of human genetics in the field of transplantation."

Another program participant, Dr. Eichwald, chairman of the Transplantation Committee of the National Academy of Sciences, said he would discuss many other problems associated with transplantation of organs, generally. "The problem of procurement and storage of spare parts looms large," he said, "and unless significant changes occur in our handling of the deceased, the supply will always remain a mere trickle." Dr. Eichwald said that with medical science overcrowding more and more obstacles associated with organ transplantation, the need for transplanted organs will remain high.

Dr. Enneking, another program participant, who is presently serving as president of the Orthopaedic Research Society, will discuss various prepared material, such as lypholized bone, curetted bone, beef bone and synthetic materials that are clinically employed as bone grafts. In discussing his lecture, Dr. Enneking said he would stress the fact that bone, unlike other tissue following transplantation, does not permanently remain as a transplant. The bone, he pointed out, is gradually incorporated into the skeleton and then, in the normal physiological process, is replaced by new bone for the remainder of the patient's life.

Dr. Roth, who is chief of the Metabolic and Rheumatic Disease Section of the Veterans Administration Center at Wood, Wis., will review the surgical cases of two young men who successfully underwent kidney transplants from twin brothers. Both men are now married and employed in Milwaukee. The first patient, James Ray, now 24, underwent surgery for a kidney transplant in June, 1958, and the other patient, John Riteris, now 21, underwent similar surgery in January, 1959. Dr. Roth said that both patients will be in attendance at the A.M.A. transplantation session, and will be introduced to the physician audience.

Scientific Articles

Bell's Palsy

MAURICE W. VAN ALLEN, M.D.
Iowa City

Bell's palsy is one of the oldest of the neurologic syndromes, but it is sufficiently common to warrant periodic reconsideration. Proper diagnosis is important, the sequelae are interesting, and the treatment—previously limited to physical therapy—is now the object of renewed attention. Paralysis of the facial nerve with accompanying loss of facial movement and expression has borne the eponym "Bell's palsy" since early in the nineteenth century, when Sir Charles Bell demonstrated that the VII cranial nerve subserved motor function to the face. He later described cases of paralysis of the facial nerve.

In recent years, the term has been regarded as properly applied only to the acute paralyses of the facial nerve without evidence of trauma or of other disease. The facial nerve is more frequently the victim of so-called mononeuritis or isolated paralysis than is any other of the vulnerable nerves, e.g., the ulnar, median, peroneal or lateral femoral cutaneous. It is especially susceptible to injury from direct trauma, basal skull fracture, mastoiditis, surgical procedures to the ear and parotid, and various neoplasms. However, this discussion will be limited to the spontaneously-occurring instances of isolated paralysis of the nerve.

ANATOMY

The motor component of the facial nerve arises in a complex of nuclear masses in the caudal part of the pons (Figure 1). It follows a peculiar course, looping about the nucleus of the abducens nerve before emerging from the brain stem to enter the internal acoustic meatus with the stato-acoustic nerve (the VIII cranial) and the intermediate nerve. In ordinary usage, the VII cranial nerve and its parasympathetic and viscero-sensory component, the intermediate nerve, are considered together as the facial nerve. This nerve has a longer course through a bony canal than any other—approximately 3 cm.[1] The route is circuitous, and close to mastoid cells and tympanum. Three important branches of the nerve are given off in its course through bone (Figure 2). The greater superficial petrosal nerve carries nerve impulses to

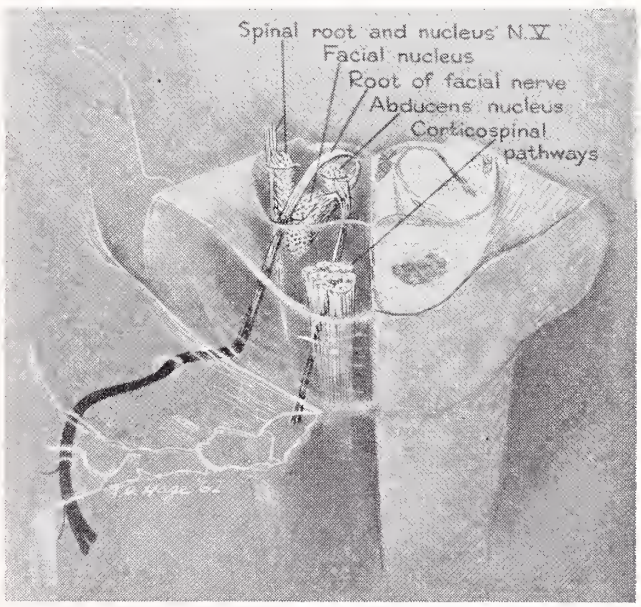

Figure 1. The relationship of VII nerve to the abducens (VI nerve). An intramedullary lesion of the VII nerve or its nucleus will usually involve the abducens as well. Similarly, a lesion involving the nucleus or intramedullary fibers of the VII nerve will usually result in partial paralysis on the opposite side of the body as a result of damage to the descending corticospinal tract.

Dr. Van Allen is an associate professor of neurology at the State University of Iowa, College of Medicine. This work was made possible by the Harriett Ames Charitable Trust Grant in Cerebral Palsy Research awarded by the United Cerebral Palsy Foundation and by the facilities of the Neurosensory Center. The Neurosensory Center is supported by program-project grant No. B-3354 of the National Institute of Neurological Diseases and Blindness of the United States Public Health Service. Dr. Van Allen presented this paper on December 11, 1961, to the medical staff of the Veterans Administration Hospital in Des Moines, Iowa.

the tear glands and nasal mucosa. The chorda tympani nerve in most subjects conducts taste sensation from the anterior portion of the tongue, and carries parasympathetic fibers to salivary glands. Both of these are branches of the intermediate portion of the facial nerve. A small motor branch innervates the stapedius muscle. The facial nerve, descending vertically through bone for a short distance, leaves the skull just anterior to the mastoid process through the stylomastoid foramen. In this region, the nerve is relatively snug in its bony canal. On leaving the canal, the nerve quickly branches—spreads through the parotid gland and distributes to the facial muscles including the platysma.

The blood supply of the nerve is important to the current concepts of the pathogenesis of Bell's palsy. The nerve is supplied by branches of the auditory and middle meningeal arteries from above, and by the stylomastoid artery from below.

SYMPTOMATOLOGY

Young and middle-aged adults are more commonly afflicted, and no difference in sex incidence has been noted. Although Bell's palsy is seen as frequently in the summer as in the winter, a history of chilling of the face is often given. Hence, the presumptive name "paralysis é frigore."

The patient may not note his paralysis until food or fluid dribbles from one side of his mouth, or until a change in his speech is noted. More often, he is first aware of a sensory disturbance in his immobile face. This, he perceives as a "numbness" or "stiffness." Pain of varying severity in the mastoid region is not uncommon. The loss of function may be complete and precipitous in onset, or incomplete at first and progressive over a period of several hours or days. In a substantial number of patients, loss of function is never complete. About 50 per cent of the patients will volunteer or attest to a disturbance of taste, and some loss of taste may be demonstrated by examination. Vertigo and disturbed hearing may result from the same ischemic changes that cause paralysis of the facial nerve.

EXAMINATION

Reduced or absent activity of facial muscles will be recognized easily during the expressional changes accompanying ordinary discourse, and with few exceptions the entire side of the face will be variously involved. Regional testing of the facial musculature can then be carried out, and this is largely done by inspection. The patient is asked to frown and then to elevate his brows. If he can't do this easily, he can be told to look upward, and his brows will elevate as he does so. An asymmetry will be evident. Then he is asked to close his lids tight. In case of doubt about weakness on one side, it is helpful to have him attempt to close his lids against resistance. Observation of involuntary blinking in cases of partial paralysis is most useful. The incompleteness of lid closure on the involved side can easily be appreciated. The central musculature can be tested by asking the patient to "wrinkle" his nose as if he were sensing a bad odor. Attempts to blow out the cheeks will show both the flaccidity of a weak buccinator muscle and the escape of air past the orbicularis oris which cannot approximate the lips tightly enough on the paretic side. The platysma is tested by asking the patient to pull down the corners of his mouth. Often, this movement pattern must be demonstrated for him.

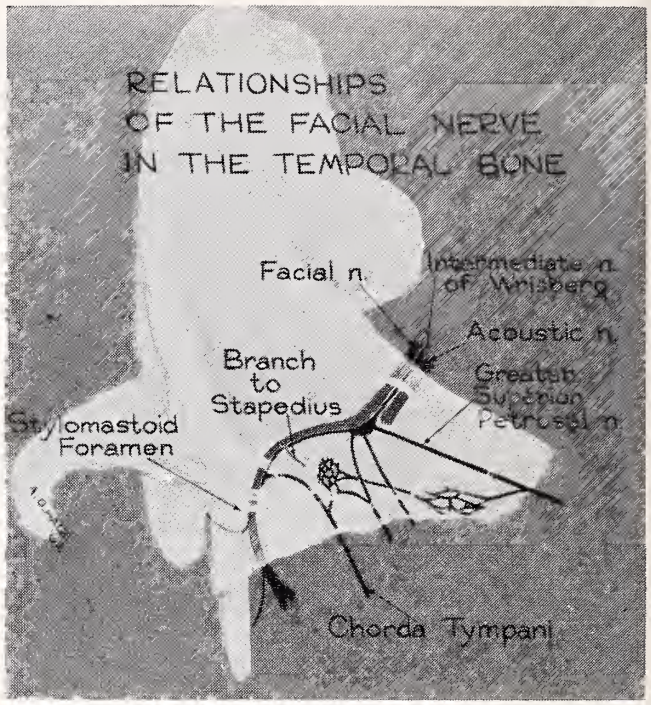

Figure 2. A sketch to illustrate the course of the facial nerve in the temporal bone. The branches are indicated.

Since prognosis based on clinical findings depends so heavily upon the degree of completeness of the paralysis, a few minutes spent in very close observation of the patient's face is in order. Careful inspection may reveal slight flickers of movement about the forehead, lower lid or mouth, whereas at first glance the paralysis has appeared complete. One must be very careful to distinguish between movement due to residual activity and that caused by a pulling of the skin across the midline. Particularly misleading are the movements of the upper lid, which will drop in blinking and will automatically follow the downward-moving eye even when the orbicularis oculi is completely paralyzed. The mentalis muscle covers the central portion of the chin. It is likely that some degree of innervation crosses the midline here, and thus this region should be evaluated skeptically.

Reduced tearing is not easily detected, but taste may be tested by having the patient put a few crystals of salt, sugar or quinine on his tongue and then make a subjective comparison of the abilities of the two sides of his tongue in tasting

them. The patient should not close his mouth during this test, and he should wash out his mouth with water between the tests of different substances.

DIAGNOSIS

At this point, the physician has two basic obligations to the patient. The first is to make an anatomic diagnosis, and the second is to make an etiologic diagnosis. These two endeavors are not entirely separable, but may be so considered in the early examination. Facial paralysis of central origin must be distinguished from that due to involvement of the peripheral nerve. This is a classic differential diagnosis in neurology (Figure 3). In paralysis due to disorder of the central nervous system (commonly cerebral infarction), the paralysis is usually not so profound, and some movement of the facial muscles is usually seen. Most important is the normal or near-normal movement of the bilaterally innervated forehead. Seldom does partial peripheral paralysis mimic this sparing of the forehead, and seldom does central paralysis prevent the patient from closing the lids. Occasionally, it is helpful to elicit the facial reflexes, since preservation or exaggeration of the stretch reflex in the presence of immobility is the hallmark of central or upper motor neuron paralysis. Tapping the forehead at the bridge of the nose results normally in a brief contraction of the lids—best seen in the lower lids. This contraction will be diminished or absent on the side of peripheral nerve paralysis, and present or exaggerated on the side of central face paresis.

Just as important to anatomic diagnosis is the elicitation of symptoms or signs pointing to involvement of functions other than those of the facial nerve. Weakness or awkwardness of the extremities, diplopia, difficulty in swallowing and trouble in finding words are not parts of Bell's palsy. Essential to the diagnosis of Bell's palsy, then, is the absence of signs not referable to the nerve or its immediate environs.

Those pathologic changes which cause paralysis of the nerve in its course in the medulla are uncommon and almost always associated with involvement of the pyramidal tract (hemiparesis) and paralysis of the external rectus muscle on the same side (Millard-Gubler and Foville syndromes, see Figure 1).

When one is satisfied that only the peripheral nerve is involved, attention should be directed to signs of disease or injury in the mastoid and in the parotid region. Basal skull fracture and local trauma should be obvious. Infections of the mastoid causing facial paralysis are usually of long standing, and signs of inflammation are evident.

Herpetic eruptions in and about the ear may ap-

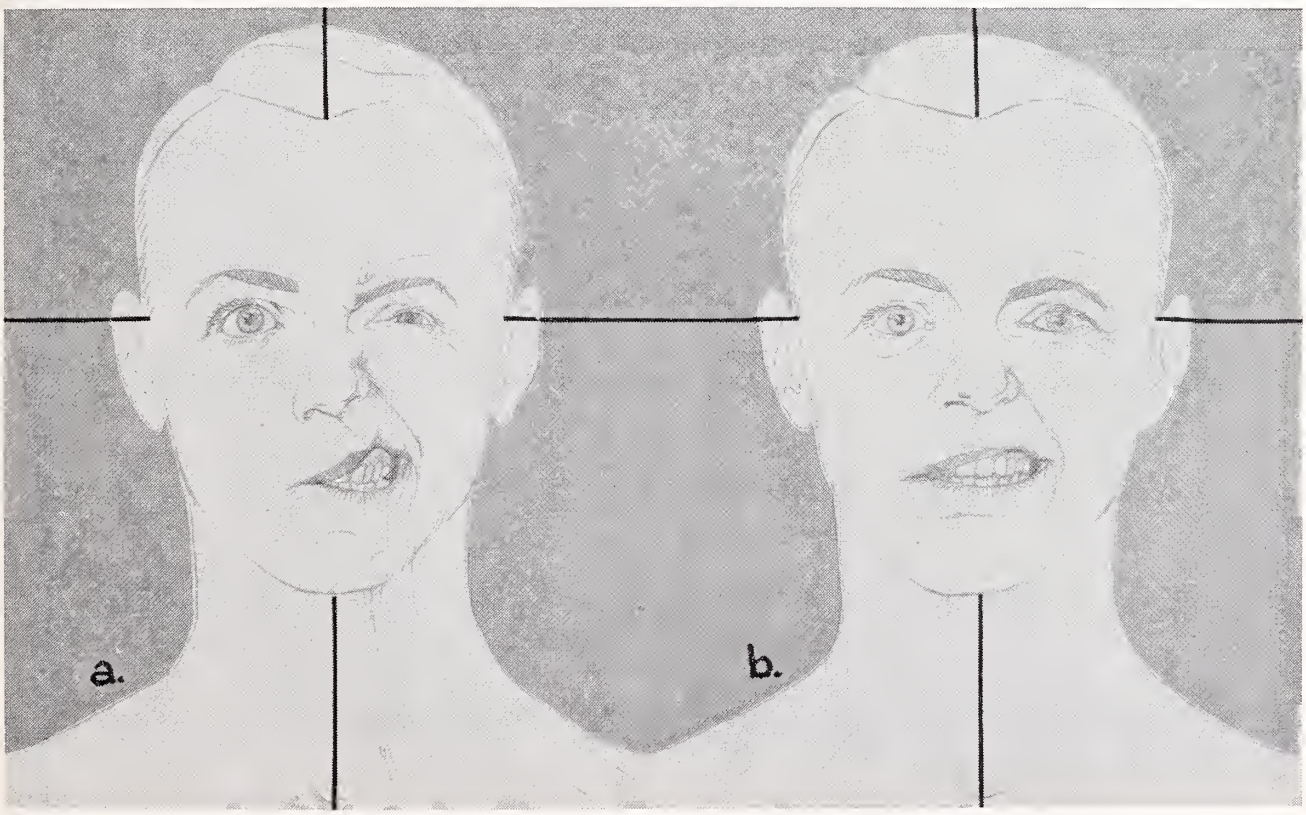

Figure 3. Comparing the features of peripheral and central facial paralysis: (a) Complete peripheral facial paralysis, right. All of the facial musculature on this side is inactive, including the frontalis and platysma. (b) Central facial paralysis, right. The musculature below the eye is relatively inactive. Contraction of the frontalis is well preserved.

pear and may be associated with considerable pain in this region. Disturbance in hearing, vertigo and other cranial-nerve paralyses may be associated with the herpes. This is the Ramsay-Hunt syndrome or "geniculate herpes"—a viral infection often associated with fever and malaise. It accounts for a small percentage of cases of facial paralysis.

Facial paralysis may be a very early sign in infectious polyneuritis (Guillain-Barré syndrome), but if so, it will soon be followed by numbness and weakness of the extremities. The facial weakness often is bilateral in this condition. Facial paralysis is also seen in poliomyelitis, but seldom without other findings. Paralysis of the facial nerve is uncommonly due to hypertensive hemorrhages or leukemia. The facial paralysis due to an intramedullary lesion of multiple sclerosis—an uncommon manifestation of this disorder—is probably indistinguishable from Bell's palsy.

Usually, it is readily apparent that only the facial nerve is involved, and usually local pathologic processes complicated by a rapidly developing facial paralysis are easy to detect. It nevertheless is often advisable to obtain roentgenograms of the mastoids. Having decided that one is dealing with Bell's palsy, he has two major obligations remaining—prognosis and treatment. But before going on with these matters, it seems appropriate here to discuss what is known of the pathologic changes in this disorder.

PATHOLOGY

Most of our knowledge of the pathologic changes in Bell's palsy has come from observations made at the time of therapeutic surgical decompression of the nerve. The current theory of pathogenesis has likewise been reinforced by these observations. Kettel,[2] in his recent monograph, describes swelling of the nerve, exudation, and evident constriction of the nerve by its investing sheath. There is little evidence of inflammation, but necrosis of surrounding mastoid bone can be seen in the severe cases. The nerve has shown edema, myelin breakdown and small hemorrhages.

The pathogenesis is considered by most to rest on primary vascular changes—i.e., spasm, with ischemia, anoxia and swelling. The bony canal limits expansion, the swelling further reduces blood flow, and thus the process may go on to necrosis. The breakdown of surrounding bone is attributed to ischemia from the same source. When necrosis of the nerve is complete, recovery must come through regeneration.

It is this theory of vascular spasm and its concomitants that forms the basis for currently-recommended therapy, both medical and surgical.

PROGNOSIS

Peripheral nerves may be made non-conductive by pressure or ischemia, and yet not degenerate or allow their muscles to do so. A physiologic block

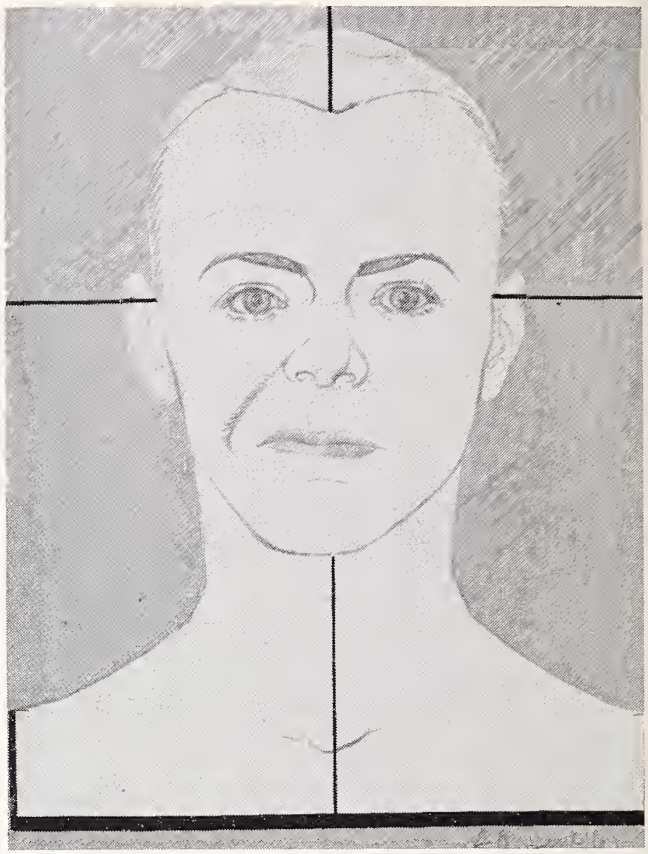

Figure 4. Contracture on the right following recovery from paralysis of this facial nerve. A constant state of contraction involving a few motor units results in an accentuated nasolabial fold. This sequela is in many cases fortunate, in that facial expression at rest is preserved, and most post-paralytic sagging of the face is avoided. It is associated with other evidences of imperfect innervation (see Figure 5). It is also seen in those patients who develop hemifacial spasm (Figure 6).

is then said to exist. No nerve impulses are transmitted, and the innervated muscle is paralyzed. In this state of affairs, rather rapid and complete return of function is possible if noxious influences are withdrawn. Such a physiologic block seems to exist in a sizeable percentage of cases of Bell's palsy. Some fibers of the nerve, of course, remain functional in the partial paralyses. However, the nerve may be completely disrupted, and return of function must await regeneration, which requires approximately two months for the earlier manifestations. Doubtless in many cases of clinically complete paralysis, a varying combination of block and degeneration exists. Such a complicated state of affairs would easily explain the widely varying clinical course.

I shall rely considerably on the reports of Taverner[3] for the following information on prognosis. The greater the degree of preserved function, the better the prognosis for recovery. In such cases of partial involvement, recovery may begin in 2-21 days, and is likely to be complete in 6-8 weeks. When paralysis appears complete to observation,

prognosis is more difficult. If pain around the mastoid is severe and paralysis is complete, there is an excellent chance that complete denervation will take place—that recovery will be delayed and incomplete, with varying sequelae to be discussed later.

The use of electromyography, a study involving the detection and analysis of the electric potentials of contracting muscle, although not generally available, is of considerable value in prognosis. When this method shows evidence of fibrillation potentials (small, brief electric changes typical of denervated muscle) then a destructive lesion of the nerve may be inferred, and recovery will take several months and will not be perfect. When such abnormal electrical activity does not appear (after a minimum of 10-14 days), there may well be a physiologic block, and prognosis is much better for an early and complete recovery. Under these circumstances, the peripheral nerve remains stimulable by faradic and square wave electric currents applied over its trunk. Obviously, repeated studies may be necessary. Electromyography must be considered in the same light as other laboratory aids, but it has definite value in these circumstances. It is also of value in detecting the earliest signs of contracting muscle before they are visible to the physician.

SEQUELAE

In those cases where paralysis is partial and/or where function returns soon, complete recovery is the rule.

When return of function is more protracted because of partial or complete denervation, recovery is never complete, although it is often satisfactory for cosmetic purposes, for protection of the eye and for lip movements in speech. The sequelae are as follows:

1. Imperfect function—i.e., loss of strength and range of movement
2. Contractures or persistent mild contraction usually seen as deepening of the nasolabial fold
3. Abnormal associated movements
4. Excessive tearing or "crocodile tears" where tearing is associated with eating
5. Hemifacial spasm—a condition of irregular, uncontrollable spasmodic twitching of the face
6. Persistent disturbance in taste (most uncommon).

The first of these is self-explanatory and of varying degree. Almost never does the nerve fail to show some evidence of regeneration. Contracture is seldom a problem to the patient, and indeed it helps to preserve the facial contour in the more severe cases (Figure 4).

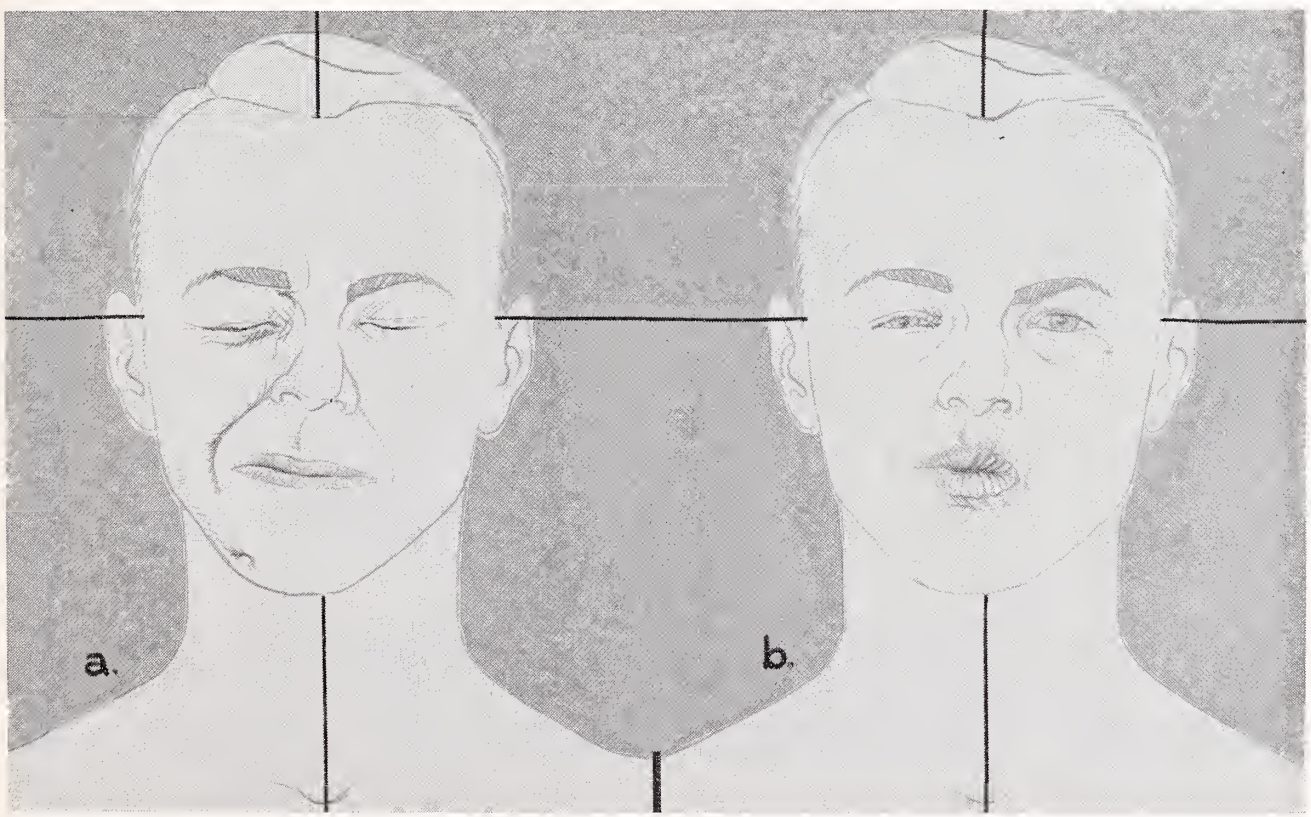

Figure 5. Abnormal associated movements following recovery from paralysis of the facial nerve on the right. (a) On closing the eyes or blinking, the patient exhibits abnormal associated contraction of the musculature about the mouth and chin. (b) The lips are puckered, and partial closure of the lids is seen on the same side.

These synkinetic contractions are presumed to be due to misdirection and sprouting of regenerating axons. The refinements of expression are lost as fewer axons distribute widely in the facial musculature, resulting in mass movements.

Abnormal associated movements may be a nuisance cosmetically and also because of the twitching sensations produced. Efforts to purse the lips or show the teeth may cause partial closure of the lids (Figure 5b). Most notable are the movements about the mouth or chin associated with blinking (Figure 5a). These movements are of theoretical interest, and are now presumed to be due to sprouting and misdirection of the regenerating axons. A nerve fiber originally directed to the musculature of the lids sprouts, on regeneration, sending branches to the orbicularis oris, mentalis and other muscles. Hence, the patient literally blinks his lips or other parts of his face. Occasionally these "blinks" are of use to the physician. The first sign of recovery may be a contraction about the mouth or chin when the patient attempts to blink.

Hemifacial spasm, which is infrequent as a major complication of Bell's palsy, is probably in some way related to these synkinesias. When severe, the repeated irregularly-occurring facial spasms become most distressing and disfiguring (Figure 6). Frequently the contractions begin in the lids and then spread to the rest of the face. Treatment by decompression of the nerve or partial resection is only occasionally successful.

The syndrome of "crocodile tears" is also related to the abnormal synkinesias. Here it is presumed that fibers of the intermediate portion of the nerve normally innervating the salivary glands are redistributed to the tear glands. The patient is annoyed by a copious flow of tears when he should be salivating over a tempting steak. This rather uncommon syndrome can be treated by surgical section of the greater superficial petrosal nerve.

Excessive flow of tears not related to eating is also seen, and ordinary tearing is troublesome during paralysis when the lower lid sags away from the globe and the flow of tears is not directed into the normal drainage channels.

TREATMENT

Older forms of treatment have included massage of the face, and electrical stimulation aimed at maintaining the muscle in a good trophic state while passively awaiting reinnervation. Probably neither of these is of much value, but both have places in the management of a distressed patient. Taping of the face to prevent sagging is a nuisance and probably has no value. Protection of the cornea and conjunctivae from exposure by instillation of artificial tears, by the use of an eye shield or even by lid closure may be necessary in severe cases. The patient must be warned of the vulnerability of the eye during facial palsy.

Newer modes of therapy are based on the theory

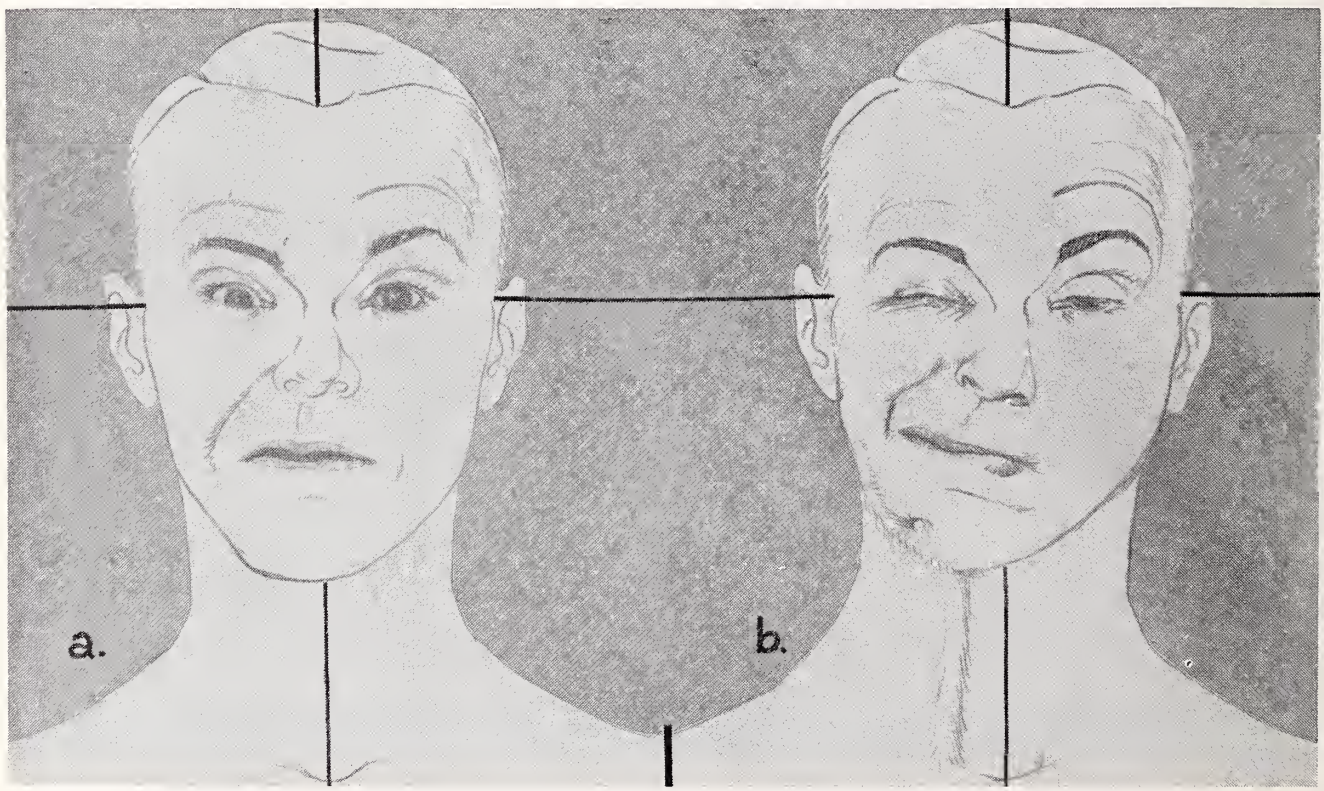

Figure 6. Hemifacial spasm, an uncommon sequela of facial-nerve paralysis, is illustrated here. (a) The irregularly occurring spasm usually begins in the orbicularis oculi. The peculiar expression taken from a photograph may have been due, in part, to an effort to keep the lids open. (b) The spasm is fully developed, involving all of the musculature on the right. The disfigurement is striking. The patient who served as a model for this sketch had a cataract on the left, and thus was blinded during the attacks. The mechanism of this condition is not understood. Hemifacial spasm may occur without preceding Bell's palsy.

of a vascular origin for the disorder. They are aimed at early relief of presumed vascular spasm and at relief of secondary edema of the nerve.

The administration of daily intramuscular and oral nicotinic acid, in doses sufficient to cause flushing and continued for a week, may have value and is worth trying.[4] The use of prednisone in daily doses of 30-40 mg. for 4-6 days and then tapering off, with the usual precautions, has been recommended but has not proved beneficial.

Korkis[5] has reported good results in reducing the period of paralysis by early stellate ganglion block with local anesthetic agents. This has not been substantiated, and though I cannot comment from experience, I favor a trial of this method early in the course of the paralysis and a critical appraisal of the results.

Surgical decompression of the nerve in its bony canal is a procedure that is now possible for the experienced otologist. Its advantages are the subject of argument, in view of the high rate of natural recovery, but the possibility of reducing the severity of sequelae should not be ignored. Even the more enthusiastic do not now recommend surgery until two months have passed without sign of recovery. When one reflects on the high rate of eventual recovery—complete or satisfactory in more than 80 per cent of cases, and often beginning early—it is easy to see how difficult it is to evaluate any therapeutic methods.

I would recommend physical therapy, protection of the eye, the use of nicotinic acid, and consideration of early stellate ganglion block.

ACKNOWLEDGEMENT

I wish to express my appreciation to Mr. Alan O. Hage, who prepared the illustrations.

REFERENCES

1. Cawthorne, T., and Hayes, D. R.: Facial palsy. Brit. M. J., **2**:1197-1200, (Nov. 24) 1956.
2. Kettel, K.: Peripheral Facial Palsy: Pathology and Surgery. Springfield, Illinois, Charles C Thomas, 1959.
3. Taverner, D.: Prognosis and treatment of spontaneous facial palsy. Proc. Roy. Soc. Med., **52**:1077-1080, (Dec.) 1959.
4. Kime, C. E.: Bell's palsy: new syndrome associated with treatment by nicotinic acid. A.M.A. Arch. Otolaryng., **68**:28-32, (July) 1958.
5. Korkis, F. B.: Treatment of recent Bell's palsy on rational etiological basis: results of cervical sympathetic block and corticosteroid therapy. A.M.A. Arch. Otolaryng., **70**:562-569, (Nov.) 1959.

Dean of the S.U.I. College of Medicine Resigns

Dr. Norman B. Nelson, dean of the State University of Iowa College of Medicine and director of University Hospitals since 1953, has submitted his resignation, effective June 30. He will become Director of Medical Institutions for Santa Clara County, with his office to be located at San Jose, California.

A native Californian, Dr. Nelson came to S.U.I. from Beirut, Lebanon, where he had been serving as medical dean at the American University of Beirut. Prior to his appointment there he had served for five years as assistant dean of medicine at the University of California at Los Angeles, and before that he had been associated with the Los Angeles Department of Health. He has done considerable research in the study of epidemics, particularly in the epidemiology of polio. Dr. Nelson, 49, earned his B.A. degree at California in 1934, his M.D. at Southern California in 1939, and master's and doctor's degrees in the field of public health at Harvard University in 1941 and 1942.

In announcing Dean Nelson's resignation, S.U.I. President Virgil M. Hancher commented, "The resignation of Dean Nelson brings to an end nearly a decade of able leadership in the University College of Medicine. Because of his background and experience, he brought to the College of Medicine of this University an unusual understanding of the relation between the basic and clinical sciences, between teaching and research, between the work of the general practitioner and the specialist, and between the profession and the public. Dean Nelson and the University can take great pride in the remarkable achievements of the College of Medicine during his administration."

The editors of the JOURNAL, speaking for themselves and for the members of the Society, join the faculty at S.U.I. and his many other friends in Iowa in wishing Dean Nelson and his family continued success and happiness.

The Biochemical and Clinical Aspects of Acetylsalicylic Acid

W. D. PAUL, M.D., and
J. I. ROUTH, Ph.D.
Iowa City

THE NATURALLY occurring salicylates found in bark, leaves and fruit of many plants and trees have been used as remedies by physicians and laymen alike for over 20 centuries. Hippocrates, Celsus and Pliny described their application prior to and during the first century of the Christian era. Pastes, infusions and juices of leaves and bark were employed in the removal of warts and in the treatment of sciatica, ear ache, skin diseases and gout. The value of natural salicylates in the treatment of fevers was recognized by laymen, but the medical profession was not generally informed of it until the appearance of a publication by Reverend Edward Stone, in 1763.[92]

The chemical structure and properties of the active substance in willow bark were investigated rather intensively between 1825 and 1840. The glucoside salicin, salicylaldehyde and salicylic acid were prepared from natural sources. Gerland[31] first synthesized salicylic acid in 1852 through the action of nitrous acid on anthranilic acid. Kolbe,[49] in 1860, used a different method for synthesis, and by 1874 the synthetic compound became available commercially by virtue of a procedure that he and Lautemann[50] developed.

Soon after synthetic salicylic acid became available, several clinical reports concerning its therapeutic value appeared. Its antipyretic usefulness was confirmed, and in addition, Stricker[94] and MacLagen[52] reported, in 1876, that salicylates were a specific remedy for rheumatic fever. Apparently, however, the natural salicylates had been used in treating rheumatic diseases for many years before the appearance of the formal medical report.

In 1853, von Gerhardt had prepared acetylsalicylic acid through the action of acetylchloride on sodium salicylate,[30] but this compound was not applied therapeutically until the end of the nineteenth century. Both Wohlgemut[101] and Dreser[20] introduced it into medical practice in 1899.

Dr. Paul is a professor of physcial medicine and rehabilitation, and Dr. Routh is a professor of biochemistry at the S.U.I. College of Medicine. The studies reported here were supported in part by a grant from the Iowa Chapter of the Arthritis and Rheumatism Foundation, and in part by a grant from Bristol-Myers Company, of New York City.

SALICYLATE CONCENTRATIONS IN BODY FLUIDS

Early methods for determining the concentrations of salicylates in blood and urine required large specimens, involved tedious procedures and often lacked accuracy. Probably the oldest and most commonly practiced method involved extraction with ether, as outlined by Feser and Friedberger in 1875.[23] From 20 to 100 ml. of blood or 100 ml. of urine was repeatedly extracted with several portions of ether, and then the extracts were evaporated, the residue was decolorized with charcoal, and the resulting solution was treated with ferric alum to develop a violet color. Then the color was compared with that of standard salicylate solutions treated with ferric alum. Various investigators had trouble with emulsions in the ether-extraction step and were unable to decolorize the residues completely with charcoal. Mosso[55] found, in 1889, that salicyluric acid, as well as salicylic acid could be extracted from urine through the use of a mixture of ether and ethyl acetate. After the extract had been evaporated, the residue was subjected to a complex series of steps, culminating in a gravimetric analysis of the two compounds. In 1912, Sauerland[76] improved the method for urine by saturation with ammonium sulfate and extraction by means of a mixture of petroleum, ether and chloroform. The extract was shaken with water containing ferric alum until no more violet color could be extracted. Then the colored solution was placed in a cylinder and visually compared with a similar solution prepared from a standard salicylate solution. Later authors found that the violet color faded and that the method lacked quantitation.

In 1915 and 1917, Hanzlik and co-workers[36, 98] improved the method for determining the salicylate concentration in urine by employing acid hydrolysis followed by steam distillation and colorimetric determination of the salicylate in the distillate after the addition of iron salts. They used

100 ml. of urine plus 20 ml. of syrupy phosphoric acid, and distilled the mixture to near dryness. They reported 90-95 per cent recovery of 5 to 10 mg. of salicylate added to 100 ml. of urine, and of 2 to 5 mg. added to 10 to 20 ml. of blood. The blood specimens were extracted with several portions of ether. Then the extracts were evaporated, the residue was dissolved in hot water, and ferric alum was added to develop the color.

In 1936, Bradley[6] developed a rapid method for measuring salicylates in urine, gastric juice and spinal fluid based on the carbon dioxide liberated by brominating salicylic acid in the Van Slyke volumetric gas-analysis apparatus. He observed that five to six hours of steam distillation from phosphoric acid, as employed by Hanzlik and co-workers, did not remove all the salicylic acid from urine. The main disadvantage of the Bradley method was that it could not be applied to blood specimens.

In the late nineteenth century and early twentieth century, several investigators had reported salicylates in the urine, blood, spinal fluid, synovial fluid and ascitic fluid. The results had been qualitative or roughly quantitative. Floeckinger[27] had studied the hydrolysis of acetylsalicylic acid in the gastrointestinal tract in 1899, and in 1902 Fillipi and Nesti[25] had reported salicylates in synovial fluid, ascitic fluid and urine after the administration of 2 Gm. of the acetylated compound. In 1917, Hanzlik and his co-workers had reported quantitative levels of salicylate in blood and synovial fluid.[79] They had administered 5 to 14 Gm. of sodium salicylate to normal individuals and found an average level of 20 mg./100 ml. in the blood and 18 mg./100 ml. in the synovial fluid. Samples of 10 to 30 ml. of blood and 7 to 20 ml. of joint fluid had been used for the analysis. Specimens of such magnitude are impractical for routine analysis. In another series of experiments, they had compared a group of non-rheumatics who had received 9 to 19 Gm. of sodium salicylate with a group of rheumatics who had received 5 to 17 Gm. The average blood level of the first group had been 26.5 mg./100 ml., versus 21 mg./100 ml. for the second. In all cases, specimens had been drawn when the subjects showed signs of salicylate toxicity, without regard to uniform time intervals.

In 1922, Fiessinger and Debray had given 1 Gm. of sodium salicylate to individuals, and had determined the concentrations of salicylate at various intervals.[24] Levels had been obtained at 10, 20 and 30 minutes, and at 1, 1½, 5, 12, and 18 hours—4.5, 5.5, 5.5, 10, 6 and 1 mg./100 ml., respectively.

RELATIONSHIPS BETWEEN DOSAGES AND ATTAINED CONCENTRATIONS

The first major investigation of the relationship between the dose and the blood level was carried out on patients with rheumatic fever by Coburn,[14] in 1943. In a group of ten patients, each of whom had received 10 Gm. of sodium salicylate daily for three days, the concentrations in the plasma on the fourth day ranged between 29 and 52 mg./100 ml., with a poor correlation between the dose and the concentration. Coburn suggested a plasma level of 40 mg./100 ml. as the minimum for effective therapy in rheumatic fever.

During the following year, 1944, Brodie, Udenfriend and Coburn[7] described the salicylate method that has gained widespread acceptance. Their method employed 1 or 2 ml. plasma samples, and involved the extraction of salicylates with ethylene chloride. The salicylates were then transferred back into an aqueous solution containing ferric nitrate for development of the violet color. P. K. Smith and his co-workers[85] adapted the method to the determination of urinary salicyluric acid and salicylates in 1946. They also applied the method to the estimation of plasma salicylate levels in normal subjects who had been given 2 Gm. of either sodium salicylate or acetylsalicylic acid. Blood specimens were drawn at intervals ranging from ½ hour to 8 hours after the administration of the salicylate. In both series, the maximum concentration was reached within 1 to 2 hours, and as Coburn had reported, there were considerable variations in levels from person to person. Approximate levels 1, 2, 4, 6 and 8 hours after ingestion were 12, 15, 14, 12 and 7 mg./100 ml. for sodium salicylate, and 6, 10, 11, 10 and 9 mg./100 ml. for acetylsalicylic acid.

SEMIMICRO DETERMINATION OF BLOOD SALICYLATE LEVELS

In the past two decades, many investigators have applied the Brodie method and its modifications to the determination of salicylate levels in studies of absorption, excretion, protein binding, effect of buffers and antacids, and other routine therapeutic questions. Recently, there has been renewed interest in the relationship between the dose and the salicylate levels at various time intervals. In the course of our investigations, we have had occasion to determine the salicylate levels in all types of body fluids, whole blood, plasma, serum and tissue samples. At times we have been handicapped by low salicylate levels, insufficient available volumes of samples and the necessity for frequent sampling.

The majority of investigators have determined salicylate levels 30 minutes to one hour after the ingestion of salicylates. We have long felt that it would be of interest to study the levels that occur within the first few minutes after ingestion of the drug. Such an experiment would involve large numbers of patients, in order that venipunctures might be obtained at staggered intervals. If more frequent specimens could be taken from a particular patient, additional information could be obtained concerning salicylate levels versus dosage versus time.

To implement this study, we have developed a

semimicro method for determining salicylate levels in blood.[74] An 0.2 ml. specimen of blood, serum or plasma is employed, and all extracting, shaking and centrifuging is carried out in 12 ml. glass-stoppered centrifuge tubes. The method is capable of determining levels of 0 to 50 ug./ml., as well as 10 to 50 mg./100 ml., and can be used on fingertip blood specimens. It is characterized by low plasma or whole blood blanks, and is well suited for the determination of the low levels of salicylate expected in the first few minutes after salicylate ingestions. Other methods, especially the "single solution" type,[16, 46, 99] are characterized by high erratic blanks and thus are incapable of accurately estimating low levels of salicylates. Very good correlation was found between salicylate levels obtained with either the micro or the macro method, using fingertip blood, plasma or venous blood, following the ingestion of 10 grains of acetylsalicylic acid.

HYDROLYSIS OF ACETYLSALICYLIC ACID IN THE BODY

Ever since acetylsalicylic acid was first used in therapy, there have been some unanswered questions concerning its hydrolysis in the body. In 1946, Lester, Lolli and Greenberg,[51] in a study of the fate of this compound, demonstrated unchanged acetylsalicylic acid in the plasma for a short period following its ingestion. Smith and co-workers,[85] in 1946, and other investigators were unable to find unchanged acetylsalicylic acid in the plasma. To aid in an *in vivo* and *in vitro* study of the hydrolysis of this compound, we prepared acetylsalicylic acid labelled with C^{14} on the acetyl group.[73] After determining conditions for *in vitro* hydrolysis, we administered the radioactive compound to rabbits both intravenously and orally, and studied its concentration in the plasma and urine. After intravenous injection, 90 per cent or more of the compound was hydrolized within 30 to 40 minutes. After oral administration, unhydrolyzed acetylsalicylic acid appeared in the plasma within 20 to 30 minutes, and persisted for about two hours. Appreciable quantities of the compound were excreted in the urine. More recently, Smith and his colleagues have reported similar findings in human subjects.[53]

Salicylic acid labelled with C^{14} on the carboxyl group was also synthesized, and the two radioactive compounds were used to study the distribution of salicylates in rat tissues three hours after administration.[10] Every tissue examined contained radioactivity, but the greatest concentration had occurred in the blood, skeletal muscle and small intestine. Following the administration of acetyl-labelled acetylsalicylic acid, a greater concentration of radioactivity was found in the expired CO_2 than in the urine. Following the administration of carboxyl-labelled acetylsalicylic acid, the findings were reversed. These compounds were used also in an investigation of the permeability of the synovial membrane in rabbits.[66] It was observed that both compounds moved freely from the blood into the synovial cavity, and from the knee joint back into the blood.

THE COMBINATION OF BICARBONATES WITH ANTACIDS

It has long been known that salicylates are better tolerated in large doses when taken with sodium bicarbonate. This beneficial effect was attributed, for the most part, to a diminishing of irritation of the gastric mucosa and to the counteraction of the acidosis formerly believed to be present after large doses of salicylate. More recently, interest has turned to the influence of bicarbonates on the concentration of salicylates in blood and plasma. Many conflicting reports have appeared on this latter subject.[37, 84, 85, 88] In general, the salicylate level may rise faster in the presence of bicarbonate than after the ingestion of salicylate alone. Three to six hours later, the level drops below that found when the salicylate has been given alone. When repeated doses are given, as in rheumatic fever therapy, the maintenance level is lower and urinary excretion is higher when bicarbonates have been given in conjunction with the salicylates. Another disadvantage of sodium bicarbonate is the fact that it may cause alkalosis if given in repeated doses over a long period of time.

In order to overcome these objections, we decided to buffer acetylsalicylic acid with insoluble antacids. In a previous study we had found that dihydroxyaluminum aminoacetate (DAA) was an ideal antacid.[65] This compound buffered hydrochloric acid rapidly, had a prolonged action, caused little or no constipation, and had a very small particle size and a favorable taste. Various mixtures were made, and it was found that the buffering effect was dependent on the ratio of the substances in the mixture as well as on the total amount of buffering substance used. Combining acetylsalicylic acid with DAA and magnesium carbonate, we effected a mixture which caused practically no gastric distress, even when given in large amounts or over long periods of time. Adding this buffer system in proper proportion to acetylsalicylic acid resulted in a two-fold increase in blood salicylate levels. The 10-minute salicylate level following the ingestion of buffered acetylsalicylic acid, for example, exceeds the 20-minute level for ordinary acetylsalicylic acid by more than 20 per cent.[64] Fremont-Smith[28] used this mixture in the management of patients with rheumatoid arthritis. He found that of 37 patients actually intolerant of acetylsalicylic acid, 26 (70 per cent) tolerated the buffered acetylsalicylic acid (Bufferin®) without exhibiting symptoms, in a double blind trial. Eleven patients were intolerant

of both acetylsalicylic acid and Bufferin, but no patient tolerant of acetylsalicylic acid was intolerant of Bufferin.

RELATIONSHIP BETWEEN SALICYLATES AND ABDOMINAL DISTRESS

Tebrock[97] has noted that "the widespread use and usefulness of aspirin are, paradoxically, one reason why researchers have kept up an interest in the limitations of its applications." Since the beginning of the century when Dreser[20] and Binz[5] suggested that the submucosal hemorrhages seen in rheumatic fever may be due to salicylates, this class of drug has often been incriminated as the cause of a gastrointestinal toxicity ranging in its effects from distress to ulcer and hematemesis.[2] Hanzlik's monograph[35] contains many references that had been made to this topic prior to 1927, and Smith[86] has reviewed the literature for the period since 1927. Paul[64] has shown that in a large group of patients who were questioned about their acetylsalicylic-acid habits, five per cent reported abdominal distress. Other authors have been in essential agreement, but have pointed out that in patients with peptic ulcer, the frequency may be as high as 30 per cent.

Paul believes that the causes of the gastric distress are gastric retention and spasm. The drug is largely absorbed without hydrolysis, although small amounts of salicylic acid, if produced, could act as a gastric irritant. Yet, in a large series of gastroscopies performed on normal individuals and patients with peptic ulcers, Paul[60] found no evidence of gastritis, hemorrhage or hyperemia following the administration of various doses of the drug.

A number of other authors have reported gastroscopies, on normal and on symptomatic patients, either confirming Paul's results,[12, 13, 45, 102] or refuting them.[19, 42, 56] It can be seen in the latter reports, however, that the authors probably were reporting the effects of gastric suction that had been used to empty the stomach. It is well known that hemorrhages, erosions and even ulcers can be caused by suction alone. Schindler[77] states that the presence of these lesions is not always a sign of inflammation. This is clearly shown in a comparison of the results reported by Ruffin and Brown,[75] who used suction, and those of Fitzgibbon and Long,[26] who employed gravity. The former reported pinpoint hemorrhages, but the latter authors could find no hemorrhages. The phenomenon in which acetylsalicylic acid tablets adhere to the lesser curvature and produce direct mucosal sloughing, described by Douthwaite[19] and by Muir and Cossar,[56] could occur only in a stomach deliberately kept aspirated. In a more recent report by Rider, Moeller and Puletti[69] on the effect of salicylates on the gastric mucosa, the results from the S.U.I. laboratory were again confirmed. These authors concluded that no significant increase in gastric acidity or occult blood occurred following the ingestion of moderate doses of salicylate. No direct evidence of mucosal irritation, hyperemia, hemorrhage or ulceration was observed in gastroscopic examinations of 30 patients who had been given salicylates, or in 10 patients who were chronic users of salicylates.

SALICYLATES AND HEMATEMESIS

The problem of the patient who has undoubted gastric hemorrhage during the period immediately after acetylsalicylic acid administration is still unsolved. Since the discovery of acetylsalicylic acid, an irritating and erosive action of salicylate on the gastrointestinal tract has been reported after single doses as well as after prolonged administration of the drug. As early as 1899, Dreser[20] stated that irritation and erosion of the stomach mucosa occur from the local action of acetylsalicylic acid. Later, many workers have shown that salicylates cause punctate hemorrhages and ulcerations in the stomachs of dogs, rabbits and other animals, regardless of whether the drug has been given by mouth or intravenously. Occult gastrointestinal bleeding and acute gastric hemorrhage have been reported frequently in association with salicylate administration.[1, 8, 29, 47, 78, 95, 96]

Muir and Cossar[57] gave two five-grain tablets of acetylsalicylic acid to 20 patients with radiologically confirmed peptic ulceration, and found increased gastric acidity, blood at gastric juice aspiration, and occult blood in the stools in some patients. In reviewing the records of 166 patients with hematemesis due to various causes, mostly peptic ulcer, they found that 54 had taken acetylsalicylic acid within six hours prior to the hemorrhage. A patient who had experienced gastric bleeding after taking small amounts of acetylsalicylic acid was examined gastroscopically by Hurst and Lintott.[42] They found that a few minutes after the patient swallowed two tablets of the drug, the gastric mucosa adjacent to the tablets had become intensely hyperemic, and there had been an extravasation of blood. Using more refined methods, Holt[41] attempted to answer the question of whether or not acetylsalicylic acid causes gastrointestinal bleeding. He labelled red cells with radioactive chromium (Cr^{51}) and was able to determine the extent to which occult blood was lost in the stools. He found that 70 per cent of the subjects who had taken acetylsalicylic acid lost an average of 4.3 ml./day. Control subjects lost only 0.2 to 1.9 ml. of blood. It was assumed that chronic ingestion of acetylsalicylic acid may be accompanied by sufficient blood loss to induce iron deficiency over prolonged periods.

In another study using Cr^{51}, it was found that small but statistically significant elevations of fecal blood loss followed oral administration of acetyl-

salicylic acid, enteric-coated acetylsalicylic acid, calcium acetylsalicylic acid, sodium salicylate or phenacetin. Intravenous acetylsalicylic acid solution produced significant elevations of fecal blood loss, but they were smaller than those produced by oral administration. This would indicate that local action on the gastric mucosa is not the sole mechanism by which salicylates provoke bleeding.[34]

Gastrointestinal hemorrhages and occult bleeding are said to occur more often in individuals who have acute or chronic peptic ulceration. In a review of 103 patients who had been hospitalized because of hematemesis and/or melena, salicylates could be incriminated in over 40 per cent.[1] It would appear that massive hemorrhage caused by acetylsalicylic acid ingestion should be one of the common causes of hospital admissions because of the universal use of this drug and because of the high incidence of peptic ulcer. Patterson[59] concluded that approximately 12 per cent of all Americans have peptic ulcer at some time in their lives. Although that figure is extremely high, it is substantiated by Palmer,[58] who has commented that autopsy studies indicate that peptic ulcer occurs at some time in at least 12 per cent of all adults. Robertson and Hargis,[70] in a postmortem study of 2,000 cases, found evidence of duodenal ulceration, either healed or active, in 11.85 per cent of them. Not only is peptic ulcer very common, but upper gastrointestinal hemorrhage is a frequent complication of that lesion. Ivy, Grossman and Bachrach[43] reported that 72 per cent of upper gastrointestinal bleeding is caused by peptic ulceration. Approximately 25 per cent of peptic ulcer patients bleed at one time or another, and similarly, approximately one ulcer case in every four is admitted to a hospital because of bleeding.

Over a four-year period, 60,614 new patients were admitted to the State University of Iowa Hospitals, and another 89,295 were seen in the various outpatient clinics, a total of 149,909 cases. Of those patients, 96 were admitted for massive gastrointestinal bleeding, but no cause for the bleeding was found. Many cases of massive bleeding were admitted, but the diagnoses in those patients were obvious or were found shortly after admission. Of the 96 individuals just referred to, exact diagnoses were finally established in 89, either after they had been in the hospital for prolonged stays, or on subsequent visits. At least 50 per cent were found to have malignancies; 25 per cent were found to have peptic ulcer; and the other 25 per cent were found to be bleeding from a variety of causes such as trauma, hemangiomas, unexplained inflammation, ulcerative colitis, etc. The seven others of the original 96 are still living, but no cause for their massive bleeding has even been found. Only four of that group had suggestive histories of taking acetylsalicylic acid just prior to or during the time of hemorrhage. The hospital records of 200 patients diagnosed as having rheumatoid or degenerative arthritis were reviewed. All of them had been admitted prior to the use of steroids or were not treated with the corticosteroids. Only patients receiving at least 3 Gm. of acetylsalicylic acid daily were included in that series. None of those patients had any evidence of gastrointestinal bleeding, had at most only traces of occult blood in the stools, and had an average hemoglobin level of nearly 11 Gm.

Since the advent of the corticosteroids in 1950, it is probable that peptic ulceration may have increased by 20 to 60 fold over the expected normal incidence in people undergoing therapy with those hormones. Of 169 patients treated with hormones for rheumatoid arthritis, 18.2 per cent of the men and 8.7 per cent of the women had peptic ulcer. No ulcers occurred in patients receiving acetylsalicylic acid.[48] Symptoms of peptic ulcer in patients receiving corticosteroids are sometimes so masked that the first indications may be hemorrhage or perforation.[9, 17, 21, 33, 38, 44, 48, 81, 100] Serious gastrointestinal symptoms occur in 25 per cent of rheumatoid arthritics treated with moderate to large doses of adrenocortical hormones, and 12 per cent of those patients develop peptic ulcer either with or without massive hemorrhage or perforation.[22, 39]

If salicylates—particularly in the form of acetylsalicylic acid—are as potent gastric irritants as they have been reported to be in the literature, then patients who developed peptic ulcer and/or hemorrhage during steroid therapy should have more dyspepsia or bleeding when given adequate doses of salicylates over prolonged periods of time. Since 1953, we have treated many rheumatoids who had previously had either proved peptic ulcers or massive bleeding during steroid therapy, giving them from 3 to 6 Gm. of acetylsalicylic acid per day. None of those individuals have had further episodes of bleeding or severe dyspepsia. Baragar and Duthie[3] have followed the mean level of hemoglobin in a group of rheumatoid arthritics treated with salicylates over a six-year period. They have found that in 31 individuals who had had only occasional salicylates the average hemoglobin level at admission was 87.2 per cent, and six years later it was 97.4 per cent. In 75 patients who received 2.6 to 4.0 Gm. of acetylsalicylic acid per day, the mean hemoglobin level at the time of hospital admission was 83.0 per cent, and that six years later it rose to 92.1 per cent. They concluded that most patients with rheumatoid arthritis can tolerate acetylsalicylic acid without an increase in anemia, and that the dangers of causing peptic ulceration or precipitating hemorrhage appear to have been greatly exaggerated.

The causal relationship between acetylsalicylic acid and bleeding can best be summed up by quoting an editorial comment from the YEAR BOOK OF MEDICINE:[105] "Aspirin being the common drug it is,

it may be as easy to obtain a history of aspirin ingestion as it is to obtain a history of some sort of emotional upset in the hours preceding a gastrointestinal episode. Elaborate control series and checks are therefore necessary before definite conclusions can be reached. Furthermore, if patients take aspirin, there usually is some reason: a headache or cold that may be more to blame for activation of the ulcer symptoms than the aspirin. It is even possible that patients who have already started to bleed take aspirin because the blood loss is making them feel poorly."

RECENT WORK WITH SALICYLATES AT S.U.I.

The widest use of salicylate, especially acetylsalicylic acid, is for the relief of pain of moderate intensity, such as headache and muscular pain. The way in which salicylates alleviate pain is unknown. Many attempts have been made to produce uniform pain of low intensity, but none of the methods used have proved successful. We have used many of these technics and have devised new ones, but all have culminated in negative results. As there is no method for producing a standard low-intensity pain, it is difficult to screen the analgesic effect of salicylates or similar medicaments. We therefore must fall back upon clinical experience and patient acceptance in determining the extent of analgesia. Acetylsalicylic acid exerts its analgesic action regardless of whether the pain is localized or widespread in origin. One of the beneficial effects of salicylates is that analgesic doses of 5 to 10 grains given every four hours do not cause central nervous system changes like those seen after the administration of narcotics. Acetylsalicylic acid has been used in every condition where pain is present, and to name those conditions would necessitate compiling a list nearly as long as the index of any textbook of medicine.

Acetylsalicylic acid has been prescribed in a variety of dermatologic conditions, with results ranging from poor to excellent. For many years antipyretic agents, including nupercaine, surfocaine, benzocaine, etc., have been used topically. In addition, a host of antihistaminics have been used topically for the same purpose. Both types of compounds, unfortunately, have proved to be relatively high sensitizers. When topical sensitization occurs, it precludes the use of these drugs for internal medication.

At the State University of Iowa Hospitals, Bufferin has been used by the dermatologists to obtain both analgesia and relief from itching. In acute pruritis and in the subacute and chronic dermatoses, they prescribe 10 grains of Bufferin every four hours during the day, and 10 grains at bedtime. In some patients, added doses are given if necessary. The more acute the dermatitis, the more important does the antipruritic effect of acetylsalicylic acid become.

The hypnotic effect of acetylsalicylic acid has not been recognized. As a result of the race among organic chemists to synthesize more and more sedatives, this type of medication has become very popular in recent years. Most of the sedatives exhibit side effects, many of which are mild and of no consequence, but others are severe and cause serious results. Ten grains of acetylsalicylic acid given an individual at bedtime will afford enough relaxation to allow him to fall asleep. The mode of action is probably not on the higher centers, but merely relieves his mild aches or pains, and allows relaxation and normal sleep to ensue. We have found that this works best in individuals having functional gastrointestinal distress, joint or muscular aches, fever from infections, mental upsets or peptic ulcer. In many of our patients, we try acetylsalicylic acid before resorting to the routine sedatives.

MISCELLANEOUS USES FOR THE DRUG

The effect of salicylates in lowering the temperature of a febrile patient is an ancient observation that has been supported by extensive clinical and experimental evidence. With the introduction of antibiotics, there has come to be less emphasis on drugs that have an antipyretic effect. The antibiotics have controlled many of the bacterial infections, but as yet they have had no effect on the viral diseases. Anterior poliomyelitis occurs in epidemics each year in the Midwest. Although the new vaccines may prevent the spread of the disease or reduce the paralysis, we have no specific drug with which to treat the malady. The only drug that we have used routinely in these patients is acetylsalicylic acid. Whenever the temperature rises above 104°F., ten grains of Bufferin is prescribed. This medication can be repeated frequently during the first week or 10 days of illness, and indeed can be given several times a day. Ten grains of Bufferin can also be given the patient in the evening to induce sleep. Headache, one of the commonest symptoms of the disease, can be relieved by means of acetylsalicylic acid.

The most distressing complications of chronic illnesses such as chronic spinal or bulbo-spinal poliomyelitis, paraplegia or hemiplegia are the infections that occur in the genitourinary tract, and the formation of bladder or renal stones in consequence of immobilization or long-term catheterization. Prien[67] reported that recurring stones resulting from immobilization could be prevented through the administration of salicylates or salicylamide. Since late in 1954, we have prescribed 15 grains of Bufferin to be given routinely, three times a day, to such patients as soon as they are admitted. This dose of Bufferin is continued as long as there is danger of stone formation. Although we have not prevented the occurrence of bladder stones around the tip of the catheter, we feel that we have reduced the incidence of both

renal and bladder stones enough to justify continuing this type of therapy.

The greatest use of acetylsalicylic acid is in the treatment of the arthritides. Its effect in rheumatic fever has been well established and needs no further elaboration.[11, 32, 40, 54, 68, 82, 91] Fibrositis, a syndrome of soft-tissue aching and stiffness, is usually caused by tension, anxiety, emotional stress and changes in climatic conditions. The pain and stiffness are usually worse after inactivity, overactivity or fatigue. It is relieved by mild activity, heat and salicylates. Myalgic spots (trigger points) can be sought, and if found, the symptoms of this syndrome can be relieved by spraying with ethyl chloride or by injection with local anesthetics or normal saline.[15] Bufferin is the drug of choice, and is very effective in doses of 0.6 Gm. three to five times a day. On the other hand, the so-called "psychogenic rheumatism" can be differentiated from fibrositis, since little or no relief results in such cases from the use of Bufferin.[72, 87, 93]

Salicylates were recommended for the treatment of gout and podagra as early as in the first century by both Dioscorides and Quintus Serenus Samonicus.[18, 83] Sée[80] reported reduction in the size of tophi and increase in urate excretion during salicylate administration as long ago as 1887. Acetylsalicylic acid and sodium salicylate act as uricosuric drugs when administered in large doses. Although they reduce tophi and increase urate excretion, the high blood levels of 30 to 40 mg. per cent that must be maintained for this purpose cause tinnitus and other symptoms of salicylism. Since the development of the newer uricosuric agents with fewer side effects, salicylates haven't needed to be resorted to in the treatment of gout.[89] The antagonistic effects of salicylates on the uricosuric action of probenecid, sulfinpyrazone and zoxazolamine are still open to question and require further investigation.[4, 71, 89, 90, 103] Small doses of salicylates do not interfere with the uricosuric drugs. In gouty arthritis, relief can be obtained through an occasional 0.6 Gm. of Bufferin.

ACETYLSALICYLIC ACID IN ARTHRITIS

In degenerative or osteoarthritis and in traumatic arthritis, the most effective drug is acetylsalicylic acid. It can be given to elderly patients with osteoporosis, hypertension, or cases of heart failure or peripheral vascular disease, without any untoward side effects. Bufferin doses of 0.6 Gm. can be prescribed for the relief of stiffness and pain. It is always safer to teach the patient to take two Bufferin tablets to relieve symptoms as they occur, than to direct that he take it regularly three, four or five times a day. Salicylates can be used in conjunction with phenylbutazone or other drugs that these elderly patients may need.

Rheumatoid arthritis is only one part of a generalized disease in which the major histologic changes occur in synovial membranes, cartilage and other structures in and about the joints.[62] There are no specific remedies that will cure or arrest the disease, and therefore treatment is directed toward (1) suppression of acute exacerbation, (2) maintenance of function, (3) reduction of pain, (4) prevention of marked muscle atrophy and shortening, and (5) the possibility of continuing the activities of daily living. The basis of all treatments for rheumatoid arthritis is the maintenance of mobility through adequate motion, and the relief of pain by means of simple analgesics and/or physical therapy of the type that can be carried out at home. Despite all the newer so-called miracle drugs, salicylates remain the most effective antirheumatic and analgesic agents in the treatment of arthritis.[61] In the acute stage of the disease, when there are symptoms such as swelling, redness, pain and heat in the joints, salicylates are given orally in the form of acetylsalicylic acid. We usually prescribe 0.6 Gm. of Bufferin every three hours until the acute symptoms have subsided, and then reduce the dose accordingly. Later, we give 0.6 Gm. on arising, to overcome stiffness, and then before each physical therapy procedure, to prevent excessive pain. Patients are taught to ask for Bufferin only when they have stiffness or excessive pain. Arthritics who are willing to endure some pain will usually remain ambulatory, rather than be chair- or bedridden. Should steroids be necessary, they are always given in conjunction with salicylates. For a patient in an acute exacerbation, we might prescribe 1.0 mg. of Prednisone six to eight times a day (a total of 6 or 8 mg.). Bufferin, 0.6 Gm., is given in the morning for stiffness, and as many times throughout the day as needed for pain. When the pain is ameliorated so that only three or four doses of Bufferin are needed, the steroid is reduced 1 mg. at a time. Relying on the salicylate rather than on the steroid, we reduce the Prednisone to the lowest possible dose, while letting the dose of salicylate fluctuate from day to day. Bufferin is never given on a regular schedule. Rather, it is used only when the pain becomes unbearably severe.

Finally, it must be recognized that individuals who have "burned-out" arthritis or who are in a remission still have pain. Pain during these phases does not represent activity of rheumatoid disease, but merely is a consequence of the ravages of the process. Loss of cartilage, fibrosis, muscle shortening, partially destroyed tendons, subluxation and contractures—all of these cause pain when the patient attempts to move an extremity. These cases do not need steroids, but rather need salicylates and physical therapy. It is this group who, when given steroids, either increase the dose or take the hormones over extended periods of time and develop serious side effects. If such patients are taught to take salicylates instead of steroids, to as-

sist them in ambulation, they will take the steroid less frequently, with more benefit and with fewer complications.[63]

CONCLUSION

A complete discussion of all the conditions for which acetylsalicylic acid has been recommended would be endless and boring. We can think of a no more fitting conclusion for our efforts than the following quotation from an editorial comment in THE YEAR BOOK OF DRUG THERAPY:[104]

"WHAT A DRUG IS THIS ASPIRIN!—The old reliable antiphlogistic in acute rheumatic fever, still holding its own against the new pituitary-adrenal hormonal compounds; the universal antipyretic; sheet-anchor therapeutic agent for rheumatoid arthritis and used in carload lots by creaking old osteoarthritics; champion of them all against general aches-and-pains; indispenable potion for the dysmenorrheic woman; splendidly effective uricosuric agent in gout; serious disturber of acid-base balance in excessive amounts; chief among the killers of infants who get at the household medicine cabinet; severe gastric irritant upon occasion; potential dealer of death to the occasional one who is hypersensitive to it; most used pharmacotherapeutic agent in the world. WHAT A DRUG!"

REFERENCES

1. Alvarez, A. S., and Summerskill, W. H. J.: Gastrointestinal hemorrhage and salicylates. Lancet, **2**:920-925, (Nov. 1) 1958.
2. Jones, F. Avery: Modern Trends in Gastroenterology, New York, Paul B. Hoeber, 1952.
3. Baragar, F. D., and Duthie, J. J.: Importance of aspirin as a cause of anaemia and peptic ulcer in rheumatoid arthritis. Brit. Med. J. **1**:1106-1108, (Apr. 9) 1960.
4. Bauer, W., and Singh, M. M.: Management of gout. New England J. Med., **256**:171-176, (Jan. 24) 1957; **256**:214-219, (Jan. 31) 1957.
5. Binz, C.: Vorlesungen ueber Pharmakologie. Herschwald, Berlin, 1891.
6. Bradley, W. B.: Method for rapid determination of salicylates. Proc. Soc. Exper. Biol. & Med., **35**:1-4, (Oct.) 1936.
7. Brodie, B. B., Undenfriend, S., and Coburn, A. F.: Determination of salicylic acid in plasma. J. Pharmacol. & Exper. Therap., **80**:114-117, (Jan.) 1944.
8. Brown, R. K., and Mitchell, N.: Influence of some of salicyl compounds (and alcoholic beverages) on natural history of peptic ulcer. Gastroenterology **31**:198-203, (Aug.) 1956.
9. Bunim, J. J.: Clinical uses and hazards of adrenal steroids and their analogues in management of rheumatic diseases. Bull. New York Acad. Med., **33**:461-473, (July) 1957.
10. Burnham, E. M., Paul, W. D., and Routh, J. I.: Distribution of C^{14} labelled salicylates in rat tissues. Proc. Iowa Acad. Sci., **63**:403-409, (Dec. 6) 1956.
11. Bywaters, E. G. L.: Treatment of rheumatic fever. Circulation, **14**:1153-1158, (Dec.) 1956.
12. Caravati, C. M.: Gastric endoscopic and secretory findings during salicylism. Gastroenterology, **6**:7-8, (Jan.) 1946.
13. Caravati, C. M., and Cosgrove, E. F.: Salicylate toxicity: probable mechanism of its action. Ann. Int. Med., **24**:638-642, (Apr.) 1946.
14. Coburn, A. F.: Salicylate therapy in rheumatic fever: rational technique, Bull. Johns Hopkins Hosp., **73**:435-464, (Dec.) 1943.
15. Copeman, W. S. C.: Rheumatic diseases, with special reference to non-articular rheumatism. New Zealand M. J., **55**:102-107, (Apr.) 1956.
16. Cosmides, G. J., Stamler, F. W., and Miya, T. S.: Colorimetric comparison of plasmasalicylate levels following oral administration of certain salicylates to rabbits. J. Am. Pharm. A. (Sc. Ed.), **45**:16-20, (Jan.) 1956.
17. Davison, S.: Massive gastrointestinal hemorrhage during prednisteroid therapy for rheumatoid arthritis. New York J. Med., **57**:1758-1760, (May 15) 1957.
18. Dioscorides: Opera quae extant omnia; Lib. I., Cap. 136 (Transl. by Janus Antonius Saracenus.), Frankfurt am Main, Andrea Wechel Heirs, 1598.
19. Douthwaite, A. H., and Linott, G. A. M.: Gastroscopic observation of effect of aspirin and certain other substances on stomach. Lancet, **2**:1222-1225, (Nov. 26) 1938.
20. Dreser, H.: Pharmakologisches uber Aspirin (Acetylsalicylsaure). Pflug. Arch. ges. Physiol., **76**:306-318, 1899.
21. Dubois, E. L., Bulgrin, J. G., and Jacobson, G.: Corticosteroid-induced peptic ulcer: serial roentgenological survey of patients receiving high dosages. Am. J. Gastroenterol., **33**:435-453, (Apr.) 1960.
22. Edgcomb, J. H.: On development of peptic ulcers in patients treated with prednisone or prednisolone. Schweiz. Ztschr. f. Path. u. Bakt., **21**:363-372, 1958.
23. Feser and Friedberger: Versuche uber die Wirkungen der Salicylsaure. Arch. wiss. ensch. u. prakt. Thierh. Berl. **1**:156-221, 1875; **2**:133-219, 1876.
24. Fiessinger, N., and Debray, J.: Evolution de la salicylemie apres ingestion de salicylate de soude chez le sujet normal. Compt. rend. Soc. de biol. Par. 1922, **87**:336-337, (July) 1922.
25. Filippi, E., and Nesti, G.: Ueber die Ausscheidung des Aspirins. Allg. med. Centre.-Ztg. Berl. 1902, **71**:613.
26. Fitzgibbon, J. H., and Long, G. B.: Gastroscopic study of healthy individuals: preliminary report. Gastroenterology, **1**:67-71, (Jan.) 1943.
27. Floeckinger, F. C.: Experimental study of aspirin, new salicylic-acid preparation. Med. News, **75**:645-647, (Nov. 18) 1899.
28. Fremont-Smith, P.: Bufferin in management of rheumatoid arthritis. J.A.M.A., **158**:386-388, (June 4) 1955.
29. Gelfand, M. L., and Goodkin, L.: Drug-induced gastrointestinal bleeding. New York J. Med., **58**:2381-2384, (July 15) 1958.
30. von Gerhardt, C.: Untersuchungen uber die wasserfreien organischen Sauren. Liebigs Ann., **87**:149-178, 1853.
31. Gerland, H.: New formation of salicylic acid, (From a letter of Dr. Kolbe to Dr. Hoffman). J. Chem. Soc., **5**:133, 1852.
32. Ghita, N.: Prevention of relapses in rheumatism. Rumanian M. Rev., **2**:48-50, (Apr.-June) 1958.
33. Granirer, L. W.: Sudden perforation of asymptomatic duodenal ulcer in patient on prednisone therapy. New York J. Med., **56**:2855-2856, (Sept. 15) 1956.
34. Grossman, M. I., Matsumoto, K. K., and Lichter, R. J.: Fecal blood loss produced by oral and intravenous administration of various salicylates. Gastroenterology, **40**:383-388, (Mar.) 1961.
35. Hanzlik, P. J.: Actions and use of salicylates and cinchophen in medicine. Medicine, **5**:197-373, (Aug.) 1926.
36. Hanzlik, P. J., Scott, R. W., and Thoburn, T. W.: Salicylates v. excretion of salicyl in urines of rheumatic and non-rheumatic individuals. J. Pharm. & Exper. Therap., **9**:247-267, (Feb.) 1917.
37. Herrera-Ramos, F.: Estudio experimental en el perro de la circulaciòn sanquînea del salicilato de sodio. Arch. urug. de med. cir. y especialid., **11**:714-719, (Dec.) 1937.
38. Hess. E. V., and MacPherson, M. E.: Perforated duodenal ulcer complicating prednisolone therapy. Brit. M. J., **1**:271, (Feb. 2) 1957.
39. Hilbish, T. F., and Black, R. L.: X-ray manifestations of peptic ulceration during corticosteroid therapy of rheumatoid arthritis. Arch. Int. Med., **101**:932-942, (May) 1958.
40. Holt, K. S.: Salicylates in rheumatic fever; difficulties experienced in treating children with large doses. Lancet, **2**:1197-1199, (Dec. 11) 1954.
41. Holt, P. R.: Measurement of gastrointestinal blood loss in subjects taking aspirin. J. Lab. & Clin. Med., **56**:717-726, (Nov. 3) 1960.
42. Hurst, A., and Lintott, G. A. M.: Aspirin as cause of haematemesis: clinical and gastroscopic study. Guy's Hosp. Rep., **89**:173-176, (Apr.) 1939.
43. Ivy, A. C., Grossman, M. I., and Bachrach, W. H.: Peptic Ulcer. Phila., The Blakiston Co., 1950.
44. Kammerer, W. H., Frieberger, R. H., and Rivelis, A. L.: Peptic ulcer in rheumatoid patients on corticosteroid therapy: clinical, experimental and radiologic study. Arth. & Rheumat., **1**:122-141, (Apr.) 1958.
45. Katz, J., Dryer, R. L., Paul, W. D., and Routh, J. I.: Effect of acetylsalicylic acid on gastric mucosa of Shay rat. Am. J. Digest. Dis., **16**:88-91, (Mar.) 1949.
46. Keller, W. J., Jr.: Rapid method for determination of salicylates in serum or plasma. Am. J. Clin. Path., **17**:415-417, (May) 1947.
47. Kelly, J. J., Jr.: Salicylate ingestion: frequent cause of gastric hemorrhage. Am. J. M. Sc., **232**:119-128, (Aug.) 1956.
48. Kern, F., Jr., Clark, G. M., and Lukens, J. G.: Peptic ulceration occurring during therapy for rheumatoid arthritis. Gastroenterology, **33**:25-33, (July) 1957.
49. Kolbe, H.: Ueber Synthese der Salicylsaure. Liebigs Ann., **113**:125-127, 1860.
50. Kolbe, H., and Lautemann, E.: Ueber die Constitution und Basicitate der Salicylsaure. Liebigs Ann., **115**:157-206, 1860.
51. Lester, D., Lolli, G., and Greenberg, L. A.: Fate of acetylsalicylic acid. J. Pharmacol. & Exper. Therap., **87**:329-342, (Aug.) 1946.
52. MacLagan, T.: Treatment of acute rheumatism by salicin. Lancet, **1**:342-343, (Mar. 4) 1876; **1**:383-384, (Mar. 11) 1876.
53. Mandel, H. G., Cambosos, N. M., and Smith, P. K.: Presence of aspirin in human plasma after oral administration. J. Pharmacol. & Exper. Therap., **112**:495-500, (Dec.) 1954.

54. Massell, B. F.: Diagnosis and treatment of rheumatic fever and rheumatic carditis. M. Clin. North America, **42**:1343-1360, (Sept.) 1958.
55. Mosso, U.: Quantitative Untersuchungen uber die Ausscheidung der Salicylsaüre und der Umwandlungsprodukte des Benzylamins aus dem thierischen Organismus. Arch. f. exper. Path. u. Pharmakol. Leipz., **26**:267-278, 1889.
56. Muir, A., and Cossar, I. A.: Aspirin and ulcer. Brit. M. J., **2**:7-12, (July 2) 1955.
57. Muir, A., and Cossar, I. A.: Aspirin and gastric haemorrhage. Lancet, **1**:539-541, (Mar. 14) 1959.
58. Palmer, W. L.: Stomach and military service. J.A.M.A., **119**:1155-1159, (Aug. 8) 1942.
59. Patterson, M.: Incidence of peptic ulcer. New Orleans M. & S. J., **96**:570-591, (June) 1944.
60. Paul, W. D.: Effect of acetylsalicylic acid (aspirin) on gastric mucosa; gastroscopic study. J. Iowa M. Soc., **33**:155-158, (Apr.) 1943.
61. Paul, W. D.: Medical rehabilitation of rheumatoid arthritis. J. Iowa M. Soc., **49**:203-206, (Apr.) 1959.
62. Paul, W. D.: Rehabilitation in rheumatoid arthritis. Southern M. J., **53**:492-496, (Apr.) 1960.
63. Paul, W. D.: Systemic manifestations of rheumatoid arthritis (rheumatoid disease) accentuated by steroid therapy. J. Iowa M. Soc., **51**:205-216, (Apr.) 1961.
64. Paul, W. D., Dryer, R. L., and Routh, J. I.: Effect of buffering agents on absorption of acetylsalicylic acid. J. Am. Pharm. A. (Sc. Ed.), **39**:21-24, (Jan.) 1950.
65. Paul, W. D., and Rhomberg, C.: Medical management of uncomplicated peptic ulcer. J. Iowa M. Soc., **35**:167-185, (May) 1945.
66. Paul, W. D., and Routh, J. I.: Studies on permeability of synovial membrane. Proc. Int. Cong. Phys. Med., pp. 208-213, 1952.
67. Prien, E. L., and Walker, B. S.: Salicylamide and acetylsalicylic acid in recurrent urolithiasis. J.A.M.A., **160**:355-360, (Feb. 4) 1956.
68. Rantz, L. A.: Treatment of rheumatic fever. Antibiotic Med. & Clin. Therapy, **4**:748-754, (Nov.) 1957.
69. Rider, J. A., Moeller, H. C., and Puletti, E. J.: Effect of salicylates on gastric mucosa. Bull. Gastroint. Endoscopy, **8**:5-9, (Feb.) 1962.
70. Robertson, H. E., and Hargis, E. H.: Duodenal ulcer: anatomic study. M. Clin. North America, **8**:1065-1092, (Jan.) 1925.
71. Robinson, W. D.: Current status of treatment of gout. J.A.M.A., **164**:1670-1674, (Aug. 10) 1957.
72. Rosenberg, E. F.: Classification and management of fibrositis. M. Clin. North America, **42**:1613-1627, (Nov.) 1958.
73. Routh, J. I., Knouse, R. W., and Paul, W. D.: Studies on hydrolysis of acetyl-1-C^{14} salicylic acid. Proc. Iowa Acad. Sci., **62**:268-272, (Dec. 15) 1955.
74. Routh, J. I., Paul, W. D., Arredondo, E., and Dryer, R. L.: Semimicro method for determination of salicylate levels in blood. Clin. Chem., **2**:432-438, (Dec.) 1956.
75. Ruffin, J. M., and Brown, I. W.: Significance of hemorrhagic or pigment spots as observed by gastroscopy. Am. J. Digest. Dis., **10**:60-63, (Feb.) 1943.
76. Sauerland, F.: Uber die Resorption von Arzneimitteln aus Salben bei anwendung verschiedener Salbengrundlagen. Biochemistry Ztschr. Berl., **40**:56-82, (Feb.) 1912.
77. Schindler, R.: Gastroscopy, Second Edition. Chicago, Univ. of Chicago Press, 1950.
78. Schneider, E. M.: Aspirin as gastric irritant. Gastroenterology, **33**:616-620, (Oct.) 1957.
79. Scott, R. W., Thoburn, T. W., and Hanzlik, P. J.: Salicylates: IV. Salicylate in blood and joint fluid of individuals receiving full therapeutic doses of drug. J. Pharm. & Exper. Therap., **9**:217-225, (Jan.) 1917.
80. Sée, G.: Etudes sur l'acide salicylique et les salicylates; traitement du rhumatisme aigu et chronique, de la goutte, et de diverses affections du systeme nerveux sensitif par les salicylates. Bull. Acad. Méd., Paris, 2.S., **6**:689-706; 717-754, 1877.
81. Segal, H.: Perforated gastric ulcer during prednisolone therapy. M. J. Australia, **1**:184-185, (Feb. 8) 1958.
82. Sen, S.: Management of rheumatic fever. J. Indian M. A., **30**:153-155, (Mar. 1) 1958.
83. Serenus Samonicus, Quintus, Commentary on Celsus, Aulus Cornelius, De Re Medica, libri octo eruditissimi, Haganoae, 1528.
84. Smith, P. K.: Salicylate metabolism in normal subjects. News Letter, A.A.F. Rheumatic Fever Control Program, **2**:8-11, 1945.
85. Smith, P. K., Gleason, H. L., Stoll, C. G., and Ogorzalek, S.: Studies on pharmacology of salicylates. J. Pharmacol. & Exper. Therap., **87**:237-255, (July) 1946.
86. Smith, P. K.: Certain aspects of pharmacology of salicylates. J. Pharmacol. & Exper. Therap., **97**:353-382, (Dec. pt. 2) 1949.
87. Smith, R. T.: Successful therapy of fibrositis. J. Am. Geriatrics Soc., **6**:147-156, (Feb.) 1958.
88. Smull, K., Wegria, R., and Leland, J.: Effect of sodium bicarbonate on serum salicylate level during salicylate therapy of patients with acute rheumatic fever. J.A.M.A., **125**:1173-1175, (Aug. 26) 1944.
89. Smyth, C. J., Frank, L. S., and Huffman, E. R.: Urate diuretic therapy in chronic gout. A.I.R., **3**:3-24, (Mar.) 1960.
90. Stillman, J. S.: Current therapeutics, CXX. Probenecid, Practitioner, **179**:719-724, (Dec.) 1957.
91. Stollerman, G. H.: Rheumatic fever. A.M.A. Arch. Int. Med., **98**:211-220, (Aug.) 1956.
92. Stone, E.: Account of success of bark of willow in cure of agues. Philos. Trans., **53**:195-200, 1763.
93. Stone, K.: Differential diagnosis of lumbago. Practitioner, **177**:100-103, (July) 1956.
94. Stricker: Ueber die Resultate der Behandlung der Polyarthritis rheumatica mit Salicylsaure. Berl. klin. Wschr., **13**:1-2, 15-16, 99-103, 1876.
95. Stubbe, L.Th. F.L.: Occult blood in faeces after administration of aspirin. Brit. M. J., **2**:1062-1066, (Nov. 1) 1958.
96. Summerskill, W. H. J., and Alvarez, A. S.: Salicylate anaemia. Lancet. **2**:925-928, (Nov. 1) 1958.
97. Tebrock, H. E.: Gastric tolerance for aspirin and buffered aspirin. Indust. Med., **20**:480-482, (Oct.) 1951.
98. Thoburn, T. W., and Hanzlik, P. J.: Salicylates: II. methods for quantitative recovery of salicyl from urine and other body fluids. J. Biol. Chem., **23**:163-180, 1915.
99. Trinder, P.: Rapid determination of salicylate in biological fluids. Biochem. J., **57**:301-303, (June) 1954.
100. Weir, A. B., Jr.: Systemic effects of prolonged use of corticosteroids. J. Tennessee M. A., **51**:395-401, (Oct.) 1958.
101. Wohlgemut, J.: Ueber Aspirin (Acetylsalicylsaure). Ther. Mh. (Halbmh.), **13**:276-278, 1899.
102. Wolff, S., and Wolff, H. G.: Human Gastric Function. Oxford, London Univ. Press, 1943.
103. Wyngaarden, J. B.: Role of kidney in pathogenesis and treatment of gout. Arth. & Rheumat., **1**:191-203, (June) 1958.
104. Yearbook of Drug Therapy, 1955-1956. Chicago, Yearbook Publ., p. 368.
105. Yearbook of Medicine, 1956-1957. Chicago, The Yearbook Publ., p. 518.

National Blue Shield Statistics

More than $816,012,000 was paid by the 75 Blue Shield Plans for care rendered members in 1961, and during the same period the medical-surgical Plans recorded an enrollment gain of more than 2,037,000 persons, the National Association announced in Chicago on April 16.

Total membership in the Blue Shield Plans located in North America reached 49,122,164 as of December 31, 1961, which represents an enrollment of 25 per cent of the total United States population, and just over 15 per cent of the total Canadian population.

Last year's payments to the medical profession in behalf of members represented nearly 89 per cent of the total income of all Plans. Meanwhile, the Plans devoted less than 10 per cent of total income for administrative expenses.

"Blue Shield's contribution toward helping an important segment of the public meet its health care needs is evidenced succinctly in this 1961 report," the National Association of Blue Shield Plans reported.

"Blue Shield payments to doctors have gone from $165,000,000 in 1951 to the 1961 figure of over $816,012,000, proving the ability of these medical-surgical Plans to provide coverage that keeps pace with the dramatic advances in medical science."

"And the fact that in the relatively short period of 15 years Blue Shield has attained nearly 50 million members reflects the public and industry acceptance and confidence in the programs offered by the Plans," the National Association's report concluded.

A Case Report

Congenital Megacolon (Hirschsprung's Disease), Associated With Hypoproteinemia and Edema

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GRIFFIN[1] RECENTLY REPORTED a case of congenital megacolon (Hirschsprung's disease) associated with hypoproteinemia and edema. He noted that a review of the literature had failed to disclose any mention of the association between the two conditions.

This paper will report a similar case, and will indicate that the association is perhaps not rare and that the possibility of congenital megacolon must be considered in an edematous infant, even in the absence of signs of obstruction.

CASE REPORT

T.A.M., a Caucasian female, was delivered in another hospital on June 20, 1961. Her birth weight was 7 lbs. 9 oz., and she was the tenth child of a 41-year-old father and a 39-year-old mother in good health. The first eight children are living and well. The ninth had died at the age of two months of mucoviscidosis, confirmed by postmortem examination.

Although the patient was irritable in the newborn nursery, and vomited occasionally, she was discharged with her mother after five days, on an evaporated milk-Dextri Maltose formula. She then weighed 7 lbs. 10 oz.

During the following three weeks, the baby gained slowly, but the parents were concerned about what they considered unusual irritability and occasional distention of the abdomen. The stools, however, were regarded as normal. The parents later recalled that during this interval they first noted puffiness of the infant's hands and feet.

When the infant was four weeks of age, the family physician made an examination because of the symptoms noted above, and made a tentative diagnosis of milk allergy. She was then placed on a soybean formula, but when it produced no appreciable change in her symptoms, she was referred to us for evaluation.

She was first seen in the Outpatient Department of Park Hospital, Mason City, on July 20, 1961. Her weight at that time was 8 lbs. 8 oz., and on physical examination the only significant finding in addition to moderate abdominal distention was bilateral catarrhal otitis media. Her diet was changed from a soybean to a meat-base formula, and she was given an oral mixture of penicillin and triple sulfa suspension, and a preparation of atropine and phenobarbital.

Forty-eight hours later, she returned and was admitted to the hospital because, during the interval, she had developed marked abdominal distention and increased vomiting. Careful questioning revealed that the mother had misunderstood the directions regarding the atropine-phenobarbital preparation and had been giving the infant a double dose in an effort to control her irritability. At that time, a diagnosis of atropine intoxication was made.

X-ray films of the abdomen showed abnormal distention of the small and the large bowel, without fluid levels or other evidence of obstruction, and those findings were thought to confirm the diagnosis of atropinism.

Laboratory studies showed no abnormalities in urinalysis or peripheral blood, and a sweat test for cystic fibrosis was reported negative.

The infant was treated with warm stupes, a rectal tube and methylpolysiloxane.* On that regimen, the abdominal distention cleared dra-

* Mylicon®, The Stuart Co., Pasadena, California.

matically, and the child was discharged after a five-day hospital stay.

She returned to the Outpatient Department on August 23, 1961. She had been relatively asymptomatic in the meantime, but had gained no weight. At that time, her hemoglobin was found to be 9 Gm. per cent, and she was found to have a diffusely audible systolic murmur, which was thought possibly to be hemic in origin. An oral iron preparation was added to the regimen of meat formula and antispasmodics.

The infant's final admission occurred on September 14, 1961, when her chief complaints were generalized puffiness and a tendency to bleed easily. The mother stated that the mild puffiness of the hands and feet noted earlier had markedly increased during the previous two weeks, and that during the same period swelling of the face had developed. Five days before admission, a blood count had been taken, and the heel puncture had not stopped oozing. The baby had scratched herself behind the ear, and this wound also had continued to bleed. Otherwise, the history was essentially the same—that is, some irritability and occasional vomiting, with slow weight gain, but normal stools.

On physical examination, the baby weighed 9 lbs. 1 oz. Her temperature was 99.0°F., rectally. She was noted to be grossly edematous, the swelling being evenly distributed over her face, trunk and extremities. Otherwise, except for moderate abdominal distention and bleeding from the heel and from behind the right ear, there were no positive physical findings.

Laboratory work showed the hemoglobin to be 10.4 Gm. per cent, the hematocrit 33 per cent, and the white blood cell count 18,500/cu.mm., with a differential of 1 eosinophil, 6 stabs, 42 polymorphonuclear leukocytes, 49 lymphocytes and 2 monocytes. The platelets numbered 490,000. The bleeding time was 2 min. 45 sec., and the coagulation time was 5 min. 15 sec. A urinalysis was negative. The nonprotein nitrogen was 27.6 mg. The total protein was 3.05, the albumin 1.52 and the globulin 1.53, resulting in an albumin/globulin ratio of 1:1. An x-ray of the chest was reported as normal, and a flat plate of the abdomen was described as showing mild gaseous distention of the small and the large bowel—again not typical of intestinal obstruction.

Griffin's article was brought to our attention on the day the infant was admitted to the hospital, but before diagnostic studies could be carried out, she went into sudden collapse and expired.

At postmortem examination, except for generalized edema and evidence of considerable oozing from venipuncture sites, the significant findings were limited to the colon: "The ascending and transverse colon are markedly dilated and have a diameter up to 4 cm. There is a sudden reduction in the size of the colon at the splenic flexure, and the rest of the large intestine is moderately contracted." Microscopically, the pathologist reported, "ganglion cells are present in the intermuscular plexus in the dilated proximal portions of the colon. In the contracted distal part of the colon, ganglion cells are absent."

DISCUSSION

Our experience agrees with that of Gross[2] in that although constipation is the rule in infants with congenital megacolon, diarrhea may appear at times if fluid intestinal matter is passed around inert fecal masses. In the patient presented here, the number of character of the stools did not appear abnormal at any time. In general, severe abdominal distention is to be expected in Hirschsprung's disease. In our patient, it developed once but probably was misinterpreted as having resulted from atropine intoxication.

Griffin has postulated that the hypoproteinemia and edema noted in his paptient were the result of malabsorption during episodes of diarrhea. A careful review of the history in the present case, however, fails to bring out any significant period when the stools were considered loose. Moreover, the nurses' notes contain no mention of other than soft, formed, yellow or brown stools during either of the infant's two hospitalizations. We also were able to exclude the possibility of massive proteinuria as the cause of the infant's low serum proteins and edema.

Typical symptoms of constipation and abdominal distention were not present to such a degree as to make the diagnosis of Hirschsprung's disease apparent. However, knowledge of Griffin's patient and of the association of hypoproteinemia and edema with congenital megacolon led to a correct diagnosis—unfortunately too late to help the infant.

SUMMARY

A case has been presented in which an infant expired at the age of three months with massive edema and hypoproteinemia. Although her brief lifetime had been marked by episodes of irritability, vomiting and failure to thrive, it had been significantly lacking in constipation, diarrhea or abdominal distention.

It is suggested that congenital megacolon be added for consideration in the differential diagnosis of massive edema and hypoproteinemia in early infancy.

ACKNOWLEDGEMENTS

I should like to thank Dr. D. L. Bray, of Algona, and Dr. G. J. Sartor, of Mason City, for permission to report this case, and Dr. Paul H. Potter, of Mason City, for the autopsy material.

REFERENCES

1. Griffin, J. W.: Congenital megacolon (Hirschsprung's disease) associated with hypoproteinemia and edema; case report. J. Pediatrics, **59**:394-396, (Sept.) 1961.
2. Gross, R. E.: The Surgery of Infancy and Childhood: Its Principles and Techniques. Philadelphia, W. B. Saunders Co., 1953, p. 334.

Diagnosis and Treatment of Brain-Damaged Children

At the Child Development Clinic, S.U.I. Department of Pediatrics

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Dr. Kugel: Brain damage is a term which in the past decade has been used frequently by a variety of people. Like many of the terms which we use, it is not always precisely applied, and sometimes it does not convey a great deal of meaning. The term can certainly imply many different etiologies. In no sense do I think it ought to be construed as meaning any particular entity. Thus, under the heading of brain damage, we might be discussing a child who had a disorder of his brain as the result of some prenatal infection, e.g., rubella. On the other hand, brain damage might apply to the child who had a subdural hematoma occurring after birth, and who had some disorder of the brain following that particular occurrence.

Another concept which I think is important in understanding this syndrome or condition would be a realization that not all children designated as having brain damage are necessarily mentally retarded. *Mental retardation* is an equally difficult term to define, and efforts to avoid confusion by speaking only in terms of a child's particular intellectual ability have not always been fruitful. We find that certainly there are children with brain damage who have intellectual levels ranging from severe mental retardation to normal and even above normal intelligence. We are aware, then, that there is a continuum of conditions which may well involve intellectual functioning.

Since intelligence is inexorably intertwined with the personality development of the individual and his behavioral manifestations, we have to try to understand what kinds of behavioral manifestations one may anticipate finding in a particular child, and how these then are related to his particular type of problem. Some of these are extraordinarily subtle. A little later, I shall present a case to you which I think illustrates very well some of the subtleties of the problem that we are talking about here today.

The authors, a pediatrician and a psychologist at the Clinic, made this presentation in Iowa City on February 22, 1961, during the Annual Refresher Course jointly sponsored by the S.U.I. College of Medicine and the Iowa Chapter of the American Academy of General Practice.

NEED FOR AN INTERDISCIPLINARY APPROACH

Most of us in medicine, having a strong biological orientation, have for some time found it difficult to understand that there can be manifestations of function in the absence of clearly defined structure. For many years, of course, people have been concerned about the function of certain anatomical structures. For instance, we have long been concerned with the controversy about the function of the thymus gland. I think that most of us would find it difficult to believe that the thymus gland does not have any function. That we are unable to describe its function accurately is all too true. Similarly, when we come to the brain, we are all well aware of the relationship between structure and function in certain portions in the area of the motor cortex. For example, we comprehend the relationship between structure and function in certain cells, and we clearly understand the significance of certain pathologic lesions.

When it comes to behavior, however, we enter into the realm of things that are somewhat less definite and sometimes even border upon the mysterious. We are less able to state a clear one-to-one relationship. A few years ago, when prefrontal lobotomies were used for the treatment of certain psychotic episodes, people were disconcerted to observe that sometimes one could essentially dislodge a whole portion of the brain with little discernible effect. The prefrontal lobotomies were by no means universally successful, and there has been an increasing realization that the frontal lobes do have certain functions, though it is still not completely clear what they are.

A structure as complex as the brain often requires, in today's world, the aid of many people if we are to understand its functions. Historically, in medicine, we have been under the strong influence of the Germanic school of pathology. From the clear discussions of Virchow,[1] we came to understand the relationships between certain histologic lesions and their pathologic effects. We

are greatly in debt, of course, to this cause-and-effect type of thinking. With the development of biochemistry and psychology, in the twentieth century, we find that there are many things which one cannot demonstrate on dead tissue, but which we are very certain exist, nevertheless, in the living individual. An example would be convulsions. Anyone can see a grand mal seizure and know that it is abnormal, and we can get an electroencephalographic tracing and know that it is abnormal, but if the patient were to die and we were to examine his brain, we probably would be hard pressed to demonstrate any lesion whatsoever in his brain, even with the most meticulous of histologic staining technics. We therefore must say that at the cellular level, we are often unable to demonstrate what is obviously a pathologic effect in the living individual.

Returning to our subject for today, this sort of phenomenon is abundantly clear as we look at the problems of children who have a variety of behavioral manifestations. I should therefore like to try to explain something of the concept of how interrelated the psychological functioning of the individual is with his neurologic condition. Dr. Alexander will elaborate on some of the psychological manifestations of these conditions, and then we shall try to demonstrate all of this further in a patient.

Dr. Alexander: Just as there are wide variations in the degrees of occurrence of encephalopathy, there are also wide variations in the degrees of impairment of the individual by an unfavorable environment. We are constantly making an effort to relate medical histories to the functioning of the individual in his efforts to cope with the world about him. Where there is considerable evidence of an encephalopathy, both from the standpoint of medical history and from the findings on examination, one usually, in addition, can see behavioral impairment.

If the encephalopathy develops at birth or during the prenatal period, it is likely that the developmental acquisitions of the child will be delayed. There is usually delay in motor behavior—in sitting, in walking, and in the manipulation and control of objects. The child has difficulty in acquiring self-care skills such as managing his clothing and feeding himself. It is also likely that there is some impairment in social responsiveness, in communication, and in using verbal symbols.

The significance or meaning of stimuli about him and those that come from other people and from interpersonal interactions presents difficulties to him. As the child grows, the meanings of different objects and the learning of appropriate responses to them continue to be an area of difficulty. For example, distinguishing between objects that can be explored and those which must be left alone is difficult for him. Efficient utilization of energy available to him presents further problems. Some stimuli have little significance for him, and he shows a tendency to go from one stimulus to another without devoting sufficient time to each. Thus, the child fails to respond efficiently, because he does not occupy himself with any one stimulus for a sufficient length of time. Usually, parental restraint becomes an important factor, and the child is unhappy much of the time because of his lack of internal control. Accordingly, environmental factors begin to play an important part, and the child's fearfulness increases as a result of his inability to control his body and to understand and to cope with the world about him. Associated with the elements of anxiety and fearfulness are self-comforting mechanisms. Frequently these mechanisms are of a somatic nature—rocking the body, banging the head, etc.

The development just described is that which is seen frequently in the child with a diagnosis of extensive encephalopathy, but there are, of course, milder manifestations. The child with a diagnosis of only mild encephalopathy will show some impairment, too. It often is difficult for him to manage a fine motor task such as tying his shoes or coloring within the lines in a coloring book. Because of some inadequacies both in his capacity for understanding and in his use of his body in relation to his environment, a child with even mild encephalopathy may also develop anxiety and fearfulness. These psychological symptoms further impair his general effectiveness.

Since the educational system requires competency in many areas, not only in motor tasks and in procedures involving abstract thought or memory, but also in social control and effectiveness, these neurologically and psychologically impaired children have problems in meeting many of the school requirements. Frequently, the complaints that parents have about such a child relate to his troubles at school. It is important, however, that the child's difficulties should not necessarily be regarded as directly related to skill acquisition in school subjects. Rather, his total problem lies in reconciling his emotional well-being and his physiologic impairment. It is obvious, too, that the child with impairment will also need some modification as far as expectations for his development are concerned. Therefore, flexibility within the family and in the educational system is necessary for all children with deviations from normal development.

Of course, there are children who have minimal signs of a pathologic nature. These minimal signs are sometimes characterized only by abnormalities in the electroencephalogram. The complaints which may bring such a child to the clinic are deficiencies in mastering school subjects, disobedience, fearfulness, or a lack of attentiveness. In such children, it is my opinion that psychological factors outweigh the minimal physiologic ones, and that such children, if not in unfavorable psychological circumstances, can manage to meet the requirements of society in a satisfactory manner.

In dealing with the total problem of brain disorders in children, there are two important con-

siderations. First, through scientific research everything must be done to prevent the occurrence of such problems. Second, if the child has a brain disorder, everything possible should be done to provide him with a favorable psychological environment.

We, who see patients in the critical or early phase of life, are greatly impressed by the fact that many of them come to our clinic with psychological factors that oftentimes impair their general effectiveness as much as do their physiologic abnormalities. With the physiologic impairment alone, many of the children seen in our clinic can manage quite well, but if unfavorable environmental factors are present—divorce, parental rejection, lack of parental understanding and societal rejection—these added difficulties greatly compound their problems. Then, children are considerably troubled and cannot conform to society's demands. Consequently, as children who have brain disorders are seen, it is important that efforts be made to obtain as favorable as possible an environment for them, and that parental discord and family conflicts be dealt with from a psychological and social viewpoint so that the child will not be additionally impaired.

CASE STUDY

Dr. Kugel: The history of Susan will illustrate some of these factors we have been talking about. This girl is nine years old, and by and large, she is a relatively healthy youngster. When her mother first came, in November, 1960, her concern was about the child's school adjustment. In school, things had not been going well. There had been the matter of this child's frequently having temper outbursts. She had not been achieving as the school people thought she could, and had not been displaying the type of behavior expected of a fourth-grade child.

Her mother had been concerned about her daughter's behavior for some time, but her concern reached a point of action, as it often does, when a complaint came from the school that Susan was having difficulty in meeting certain norms. As one talked with the mother, it became apparent that she had been concerned about this girl for several years. The way in which she described the youngster's behavior was interesting. She described it as "alternately friendly and ruthless." The word *ruthless* was her own and I think it is significant that she used it to connote a severity of behavioral manifestation.

The mother is an older woman, being 54 years of age, and perhaps her age is a part of her daughter's problem. She has a son 34 years of age and another daughter who is 22 years of age, which is a wide range in ages. The son has severe cerebral palsy and mental retardation, and is now in a custodial home. The daughter has married and is living in California. Susan is a child who had not been planned for. Both parents were most upset about this late pregnancy. They wonder whether they have over-compensated for their earlier feelings of rejection by, at times, being very indulgent to this little girl. They have provided her with many things that neither parent had as a child. They have given her many clothes, and Susan is always very well dressed. She has all of the toys and other things that a youngster of her age wants —a great abundance of them.

In her early history, we learned, the child had had episodes of chickenpox and measles occurring simultaneously. This phenomenon is not rare, but when we see it, there is often reason to be concerned. The child had been stuporous at that time, and had fever ranging to 105°F. for several days.

We lack sufficient evidence to state conclusively that this child did have an encephalitis, but the symptoms, as we reconstruct them, are highly suggestive of it. Thus, one might make a presumptive diagnosis that the child had had an encephalitis associated with these other disorders at the age of five years. Actually, the mother dates her daughter's problem from that time, as far as her main behavioral manifestations are concerned. Although it was true that, for instance, the problems of the child's being accepted into her family and being overly indulged antedated the illness, they came out in bolder relief following her very serious sickness.

In addition, this youngster's father has had some chronic heart disorder, and recently has tended to withdraw from the family circle. He has been highly critical of the way in which the child has been managed, from a behavioral point of view, but has been unable to take an active role in altering the pattern.

As far as the neurologic appraisal of this child is concerned, she is essentially intact, and all of her responses are clear, precise and certainly well within the normal range except for some minor motor deficit. We have been interested here in getting a better understanding of the usefulness of the electroencephalograph as an indicator of abnormal cerebral physiology. Using the EEG in a closely controlled fashion, we find that a long tracing obtained over a period of about an hour, including a sleep record, will often enable us to find aberrations that one is unable to discern in shorter records. In this instance we found some disorders in the electroencephalographic tracing, and we have added those findings to our other evidence to suggest that the child has diffuse encephalopathy of unknown etiology.

Here we have, then, an example of a child who has been given less than adequate psychological nurture, and in addition has some degree of physiologic impairment. Behaviorally, we have a child who is not functioning up to the expected norms for her age. The combination of these two abnormal factors, the psychological and the neurologic, is an especially pernicious one.

This child is an example of what both Dr. Alexander and I have been discussing. It is interesting to note that the children in whom one or the

other of these manifestations seems to be absent, have a better total life adjustment. For example, one certainly finds children with various types of brain disorder who have excellent psychological adjustments. On the other hand, we see children who have been reared in most unfortunate types of environment who are able to survive their handicaps in a relatively unimpaired fashion.

A psychiatrist who has been interested in this problem, Lauretta Bender,[2] has pointed out after years of viewing the large numbers of children raised in poor circumstances in New York City, that it is not surprising to find children with psychiatric disorders but only surprising that there are not more of them. Bender postulates that when we have the combination of some degree of encephalopathy along with inadequate psychological climate, we are more apt to have a devastating end product than when either factor is present alone.

DISCUSSION OF PSYCHOLOGICAL FINDINGS

I would like to ask Dr. Alexander to elaborate on some of the psychological findings as they relate to this specific case.

Dr. Alexander: Not very long ago, we had two pediatricians from the British Isles working with us in the Child Development Clinic, and when they first came, they expressed the opinion that American physicians seemed to rely upon the laboratory more than they probably should. I think that their views changed after they had been here a while, but they were right, perhaps, in thinking that sometimes there is a tendency for all of us to depend upon our measurements and other mechanical technics too much and upon reasoning too little.

In studying this child, it was possible for us to obtain a number of psychological test scores, but they must be interpreted in a context of other information and background material.[3] The information from some tests does not contribute very much. Susan is functioning in the low-average range of ability on the *Wechsler Intelligence Scale for Children.*[4] *The Vineland Social Maturity Scale*[5] is a technic for indicating the parent's view of development. The child's parent is asked certain questions about the child's accomplishments—how the child can manage an allowance, how well the child can take care of household tasks, and how responsible the child is in fulfilling parents' requirements. By these two yardsticks or tests, this particular child is in the average range. However, we do know that she is having difficulty. The mother was upset about the child's behavior, as was the school. So, despite the fact that these test scores indicate that the child is all right, we know otherwise.

There are other kinds of psychological technics of course. For example, there are technics to study the ability to reason and to measure the complexity of response.[6] Our research has indicated that one can grade the subject's ability to assign meaning to a stimulus and to perceive cause-and-effect relationships.[7, 8] In such a test, the child whom you have seen this morning is seen to be impaired and inadequate. We are constantly looking to find new ways of understanding such a difficulty as this child has. As Dr. Kugel has pointed out to you, if the child has some anxiety about her own capacity and about her means of coping with the world and if, in addition, there is parental discord and anxiety for the child about her place in her family, the problem is compounded.

It should be emphasized once more that most of the problems that we see are those of children who are either mild or borderline cases—ones who are not doing very well and who, on the other hand, are not doing very badly. Usually, their difficulties are both physiologic and psychological.

Dr. Kugel: In the management of such cases, we realize the need for using the abilities and resources of many people. All of us prefer to deal with the relatively straight-forward medical situations. We feel that we are on firm ground—or, I know I do—when I see a child who has a temperature of 104°F. and learn that there are streptococci present. We administer penicillin and dispatch the problem with little residual concern, in most instances. This we like to do, and it is the kind of thing that is totally within the confines of our understanding and abilities as physicians. Unfortunately, however, either as medicine has broadened or as we have become aware of the complexities of things, it is often impossible for us to handle all problems unaided. Such is the case in this instance.

We attempted to approach this child's problems from the standpoint of three things: (1) medication to help in the control of her behavior, (2) interpretation of the problem to the school, and (3) counseling with her mother about how she might help to be more constructive with Susan.

MEDICATION

I should like to deviate from the discussion of this girl and to talk more generally about the kinds of problems that are presented to us. What about medication? In the past quarter century, we have seen many new drugs become part of our armamentarium, and some of them have greatly facilitated patient care. First came the antibiotics, and a little later came the steroids. We are now attempting to grapple with some of the drugs that have some effect on the brain and its functions. We understand some of the analeptic drugs somewhat better than we did at first. Yet we have had difficulty in evaluating them because our cases are often elusive—caused by many different factors—and our tools for assessing and appraising the results are not always definite. As for the literature, we are confronted with reports which say that a drug was given to a patient and that he "felt better." It is hard to know whether he felt better because he had been given a pill, or whether he felt better because of the action of the pill.

I think we must exercise great caution in the

whole area of the so-called tranquilizing drugs or drugs with a sedating of stimulating action. They must be considered very carefully and assigned their proper place. I think it doubtful that we shall find drugs capable of completely replacing some of the other things that I shall mention. At the moment, we need to provide management of patients which integrates the physiologic and psychological components. One of the comments that Freud[9] made in his latter years was that psychoanalysis was really useful only insofar as it was a means of understanding the behavior of the individual. He went on to say that the time might well come when we could influence behavior more directly as a result of the use of drugs. He wrote in the mid 1920's entirely before the era of the tranquilizing drugs. Freud began as a student of neurology and had that field as his first interest. He was much concerned about these problems of the interrelationship of structure and function.

As we learn to control certain types of convulsions, we should not give up hope of controlling other manifestations of disorder which, although they are elusive at the moment, may not always be so. We have had Susan, for example, on Deaner®, a drug manufactured by Riker. It is one of a group of amphetamines that seem to have some promise when used in rather large doses for this particular kind of condition. These drugs seem to reduce some of the extraneous and upsetting behavior which Dr. Alexander described.

It is certainly important in this particular case, as it is in so many others, for us to enable both the parents and the teachers to assess the child's abilities and disabilities, and to achieve degrees of flexibility which they have hitherto lacked in dealing with these children. We have endeavored to work with Susan's mother to help her understand what she was doing with this child, and she has made some progress in this regard. I think that otherwise we would not have seen the changes which have occurred in this girl.

There are things that yet need to be done in this case, as there almost always are. Just as important as what we did with the mother, was our attempt to work with the school. All of us today are concerned with the children's performance in school. We are told that we do not compare with the Russians in our accomplishments, and that charge is having its effect upon our schools. Educators are attempting to clamp down and to have children conform to higher standards. Whereas this may be salutary for the population as a whole, it creates a problem for the child who is on the fringe of adequacy or for the child who is having difficulty in meeting the norm. I think it essential that we understand that there are individuals who cannot meet any set standard. Thus, we must develop latitude in our educational system, at every level, for coping with the child who has some type of deviant quality. This tolerance is difficult to achieve, but I think it is an important thing, and certainly as physicians we need to interpret our feelings and thoughts to the school people who have so much influence on the child's life and in the development of his potential.

If we can weave together the three aspects that I have mentioned, the outlook for such children can be very much improved. Susan has a chance, we feel, to adjust to her world in a more satisfactory fashion. If the patient were a boy, we should be inclined to feel that there were strong antecedents for antisocial behavior. I do not mean to say that there cannot be problems with girls, but boys have more chances for getting into trouble. As far as total maladjustment is concerned, however, the seeds have already been planted in Susan's psychological make-up, and it is up to us to attempt to alter some of the processes. To conclude my remarks, I should like to say once more that in these children's problems we have a subtle interweaving of both physiologic and psychological manifestations which produce the end-product of disorder.

Dr. Alexander: As has been emphasized, one cannot expect to see medications at present relieving intellectual impairment or encephalopathies to any considerable extent. It is possible that some drug might enhance the functioning of the brain and increase the individual's potential for receiving stimuli and his capacity for responding to complexities. But whereas a number of drugs have had such goals and purposes, their effects have been limited. Our purpose in making use of Deaner® has been to attempt objectively to measure the changes that take place.

In studies concerned with the effect of drugs on behavior there are, of course, many pitfalls. We have tried to avoid some of them. We are aware that not all of the factors in these studies may have been controlled, and that there may very well have been improvements in the behavior of these children that are not attributable to the drug. On the other hand, there may have been improvements as a result of medication that we are unable to measure. In any event, in our present research study we rely upon four objective psychological measures, in addition to whatever the parents or others may report to us about the behavior of the child.

My only comment at the present would be that we see general satisfaction among the participants in the study, and there seem to be improved attitudes on the part of the parents toward their children. Objective data have yet to be analyzed, and whatever contributions such data make or do not make, it is clear that the people cooperating have been pleased to participate in the study. We believe the usefulness of such drugs will require extensive evaluative effort before definite conclusions are warranted.

TYPES OF CASES TREATED AT S.U.I.

Dr. Alexander and Dr. Kugel: We cannot, of course, describe the frequency or incidence of

neurologic deficit in children in our society or state. We can, however, describe and determine the types of problems which are brought to the Child Development Clinic in the Department of Pediatrics. Theoretically over a period of time our study should provide information which would lead closer to a description of incidence in the general population.[10] We are unable to provide any information as to the total incidence, since we are certain that many such children are not referred to University Hospitals. However, in the Child Development Clinic we have no limiting factors on the types of neurologic deficit or encephalopathy seen and, therefore, the percentage of incidence within the sample encountered should be of some value. We are aware, of course, that there are influences of sampling over which we have no control, although in the Child Development Clinic patients range over the various social classes in our society.

In Figure 2 it can be seen that children are referred to the Child Development Clinic from over the entire state. The larger number of referrals comes from the populous areas close to University Hospitals. It should be noted, however, that all of the areas of the state are represented. Figure 3 illustrates the occupations and general background of the people coming to the Child Development Clinic. While Iowa is overwhelmingly a rural state, it is to be noted that by far the larger per cent of patients comes from families depending on income from industry rather than farming.

Figure 4 contains information about the percentage of the patients in the various diagnosic categories seen in the Child Development Clinic. The statistical mode occurs at the category of encephalopathies resulting from trauma or some physical agent. Most such difficulties are associated with problems of birth. It also can be seen that there are many children with encephalopathies which have resulted from some unknown prenatal influence. In our study of these children it has been possible to learn that the difficulty was present before birth. Many of these disorders are various types of congenital anomalies. Also, many children are seen to have neurologic deficit and encephalopathy, but we are unable to determine the cause—that is, whether the etiology was prenatal or postnatal. Further, when one examines Figure 4, it is apparent that there are many children with behavior disorders whose behavior does not conform to society's demands, but who are found from our study to be free of neurologic disorder. As far as we can determine, no evidence of encephalopathy exists. About 5 per cent of the total number of children referred to the Child Development Clinic are found to have psychophysiologic and psychological difficulties. Almost all of these cases are diagnosed as having ulcerative colitis. There are, however, other patients who have cardiac and dermatologic problems. A few children are referred to the Child Development Clinic who, as far as we can determine, appear to be normal both physiologically and psychologically. Such children usually have been referred because the parents have had difficulties and have been concerned about the effect of family disorder on the child. And, in some cases, they have believed the child to be deviant but we have found the difficulties lying predominantly with the parents. Such children, at the time of study, display no significant abnormalities.

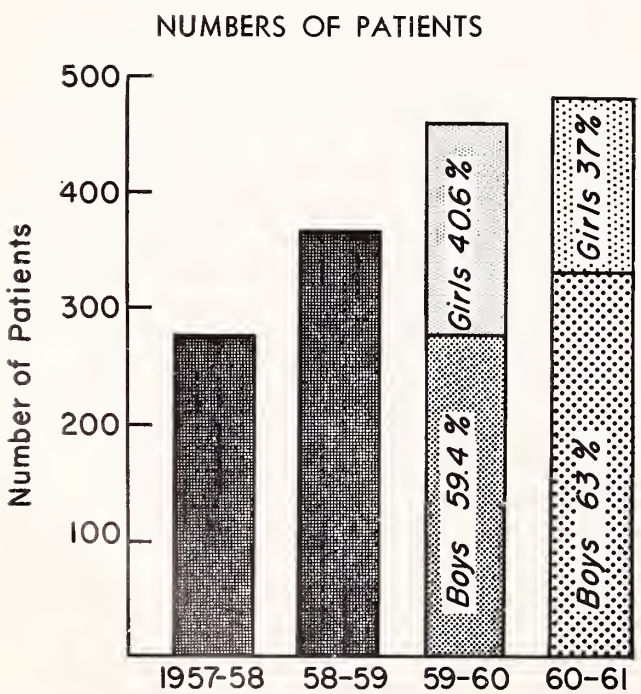

Figure 1. Numbers of patients seen in the Child Development Clinic.

The study of children who have neurologic and psychological disorder is relatively new, and has not had the emphasis that other areas of disorder have had. Both knowledge and means of treatment are as yet inadequate, but the considerable significance of these types of problems is increasingly being recognized. It is likely that great advances will be made in these important areas within the next few years.

REFERENCES

1. Virchow, Rudolph: Cellular Pathology as based upon Physiological Histology. Philadelphia, Lippincott, 1863.
2. Bender, L.: Child Psychiatric Techniques: Diagnostic and Therapeutic Approach to Normal and Abnormal Development through Patterned, Expressive, and Group Behavior. Springfield, Illinois, Thomas, 1952.
3. Alexander, T.: Mental Subnormality: Illusions and Directions. Internat. Record Med., **172**:80-86, (Feb.) 1959.
4. Wechsler, D.: Wechsler Intelligence Scale for Children. New York, The Psychological Corporation, 1949.
5. Doll, E. A.: Vineland Social Maturity Scale. Minneapolis, Educational Test Bureau, 1947.
6. Alexander, T.: The Behavioral Complexity Test: A Test for Use in Research. Iowa City, State University of Iowa, 1961.
7. Alexander, T.: Influence of central nervous system and behavior disorder upon complexity of response. Amer. Psychologist, **16**:351, (July) 1961.
8. Alexander, T., and Kugel, R. B.: A concept of behavioral complexity: A study of factors of normality, psychopathology, and culture related to behavior of children. To be published in Genetic Psychology Monographs, 1961.
9. Freud, S.: Selected Papers on Hysteria and Other Psychoneuroses. New York, The Journal of Nervous and Mental Disease Publishing Co., 1909.
10. Redlich, F. C., and others: Social structure and psychiatric disorders. Am. J. Psychiat., **109**:729-734, (Apr.) 1953.

RESIDENCE OF PATIENTS BY COUNTIES

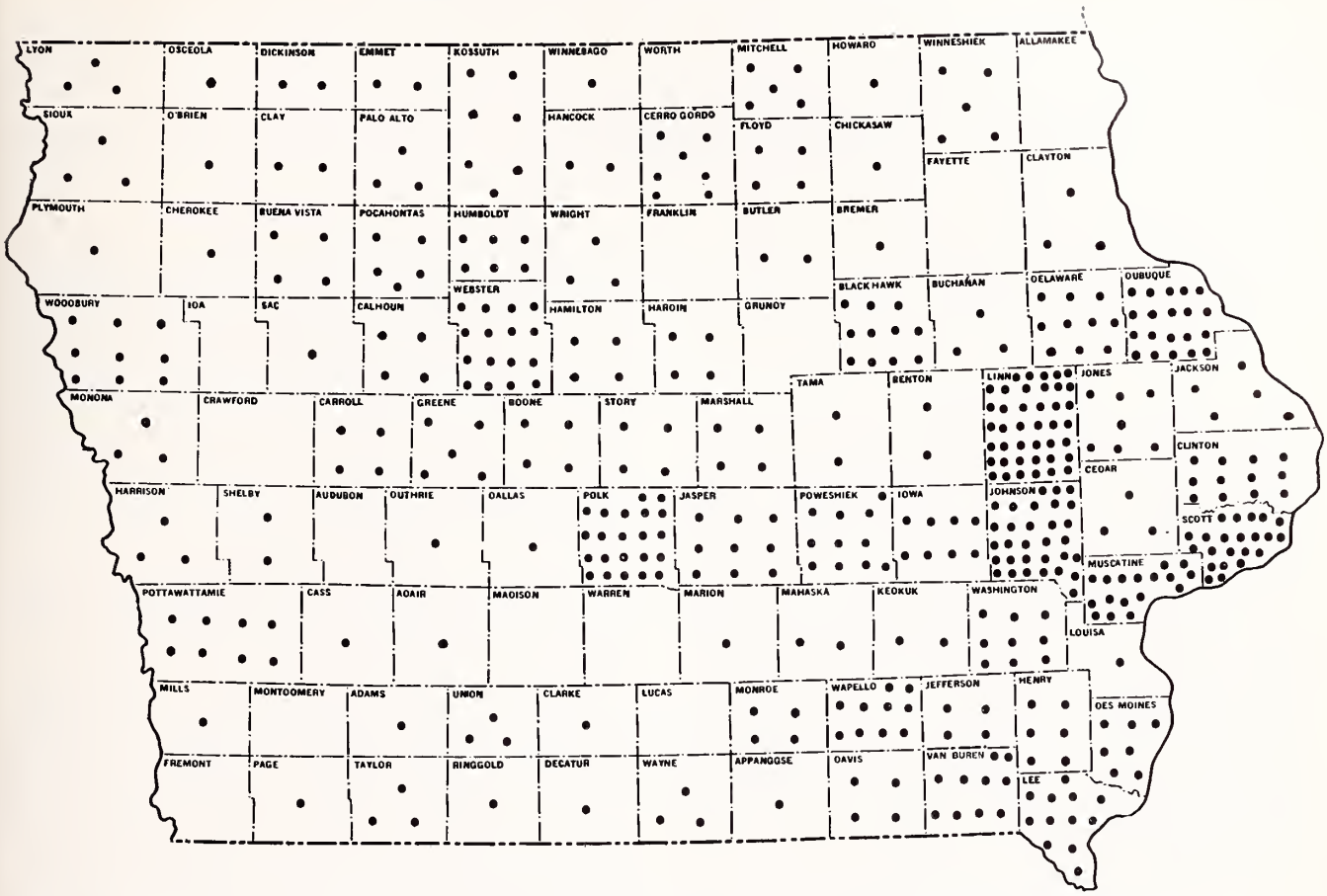

Figure 2. Distribution in the state of patients seen in the Child Development Clinic for the year 1960-1961:

Out of state	19
Total Iowa	478
Grand Total	497

FATHER'S OCCUPATION

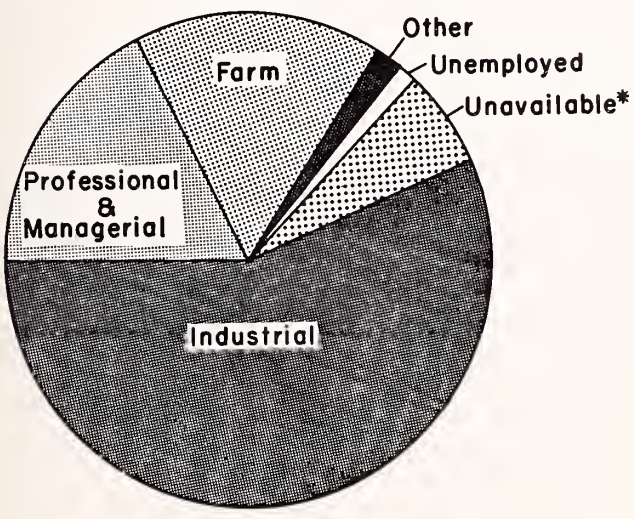

Figure 3. Percentage distribution of patients according to father's occupation.

* Father separated.

MEDICAL AND PSYCHOLOGICAL DIAGNOSTIC CATEGORIES

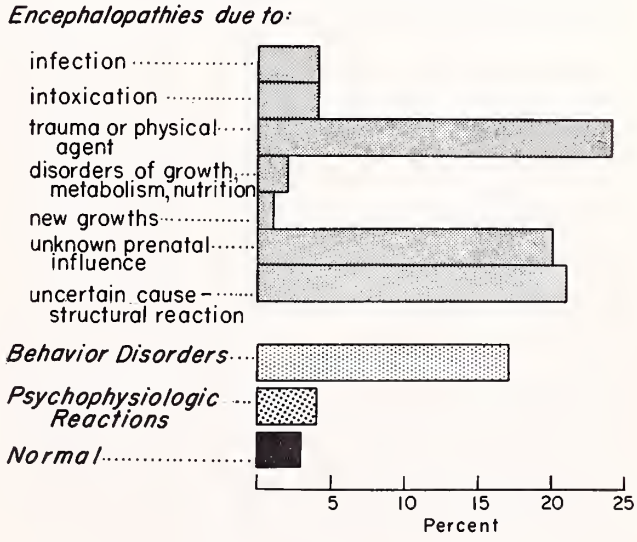

Figure 4. The frequency distribution of medical and psychological diagnostic categories of patients seen in the Child Development Clinic based in part on the system of classification of the American Association on Mental Deficiency.

The Face of Depression

A. S. NORRIS, M.D.
Iowa City

MOST PHYSICIANS ARE unaware that depression is one of the commonest of all illnesses.[1] According to one estimate, 40 per cent of the patients whom family physicians see have illnesses that are primarily emotional, and depressions constitute a large share of that group.[2] Forty per cent of major depressions, moreover, resemble one or another physical disease, and the differential diagnosis may be quite difficult.[3] The depression may also be a *symptom* of physical disease.

At best, failure to diagnose a depression may result in much futile and useless investigation; at worst, it can be fatal. Suicide is one of the most frequent causes of death in this country. Over 20,000 people each year take their own lives, and another 100,000 make the attempt.

PRESENTING SYMPTOMS

The patient is unlikely to tell the doctor that he is depressed. Often he is unaware of his depression, or if he recognizes it, he does not acknowledge it, for he regards such a statement as an admission of weakness or insanity. Very often, he complains of a physical symptom, and does not associate it with his depressed mood. Unfortunately, physicians also fail to see this relationship in many instances.

The depressed patient commonly presents with:

1. Somatic pains and aches
2. Constipation
3. Fatigue
4. Weight loss
5. Nervousness
6. Insomnia
7. Loss of libido.

His relatives may have urged him to seek medical help because they have noticed a change in his pattern of behavior. They may complain that he gets no work done, that he appears withdrawn and that he prowls around at night. A sudden bout of alcoholism can be a symptom of depression, or the patient's decision to sell his farm, give up his job or, generally, to "give up" in any endeavor may be significant.

There are many clinical types of depression, but it is more important for the physician to distinguish between the mild and the severe kind than to pigeonhole them in specific psychiatric classifications. The mild cases are usually amenable to office therapy, but severely depressed patients are often suicidal, and office treatment is thus contraindicated.

MILD DEPRESSION

A mild depression may manifest itself in many ways, but the following case will illustrate some of the commoner ones.

Mrs. Smith, aged 34, describes her symptoms: "I'm not the same as I used to be. I used to like people, and I belonged to a lot of clubs. I enjoyed doing everything. I had lots of pep. I could clean house, work in the office, cook dinner and be ready to go out in the evening. But for the past few weeks I've been so tired. I don't enjoy anything, and nothing seems to be worth trying. I've been a lot more tense; I have trouble going to sleep at night."

Questioning often elicits some precipitating event such as a change or loss of job, or the unfortunate end of a love affair. These patients may present themselves with any number of symptoms, and further questioning will reveal others. They may include complaints of nervousness, the feeling of being unable to concentrate, a difficulty in remembering or a difficulty in thinking. The patient may complain of being worried all of the time or of not getting a "kick" out of anything. Often, there is initial insomnia (difficulty in getting to sleep), a decreased ability to enjoy eating, and some weight loss. There may be a decreased interest in sex. Anxiety and tensions are often present, and there frequently is a history of recent environmental stress.

During the interview, the patient appears fairly normal. He gives his history easily and coherently. He may appear sad and somewhat tearful, but he is not profoundly depressed. He can smile and respond appropriately to the physician. Often he feels better after having had a chance to talk about the way he feels.

The common symptoms of mild depression are:

1. Fatigue
2. Poor concentration
3. Initial insomnia
4. Loss of interests

Dr. Norris, an assistant professor of psychiatry at the S.U.I. College of Medicine, made this presentation to the Spring Conference of the Iowa Chapter of the American Academy of General Practice last June, at Lake Okoboji.

5. Anxiety and tension
6. Inability to enjoy things
7. Loss of appetite
8. Some loss of weight.

I repeat, it is extremely important to distinguish the mild depression from the severe one.

SEVERE DEPRESSION

Mr. McDonald, a 58-year-old man, has been somewhat nervous almost all of his life. In the past three months, however, he has developed some difficulty in getting to sleep at night, and he has been waking up at 4:00 a.m. He is unable to enjoy eating, and has lost 22 lbs. of weight. He has been worrying about his business, although he admits that recently he has been making more money than ever before. The future looks hopeless to him. He admits that he has thought of suicide. He has had feelings of worthlessness, and has wondered whether other people know about all of his past sins and are talking about him.

In his severe depression, the patient is in obvious difficulty. He has feelings of guilt and makes statements such as "I am a sinner. It's all my fault. I have ruined my life and my family." He searches far into his past for things that he has done wrong, and enlarges their importance out of all proportion.

The physical symptoms are very important diagnostic features of severe depression. The patient describes terminal as well as initial sleep disturbance. Terminal sleep disturbance, in which the patient wakes at three, four or five in the morning and is unable to go back to sleep, is almost pathognomonic of severe depression. Other physical difficulties include poor appetite, dry mouth, blurring of vision, weight loss, constipation, and a diurnal pattern of energy and mood in which the patient feels worse in the morning when he has the whole day ahead of him, but feels increasingly better as the day progresses, until by evening he may feel almost normal and can, for example, enjoy TV programs. Most suicides occur in the early hours of the morning.

The severely depressed patient often appears physically ill. He looks depressed, and he may show evidence of malnutrition and dehydration. His speech and movements may be slow. He may have difficulty in expressing his thoughts. On the other hand, he may be excessively active and agitated, plucking at his clothes and pacing the floor. Agitation is commonest in older patients.

He is unable to shake the depressed mood. He cannot accept reassurance. He feels no better at the conclusion of his interview with the doctor, and says as he is leaving, "Nothing can help. It's all my fault, and I've got it coming to me."

The characteristic signs of severe depression are:

1. Initial and terminal insomnia
2. Loss of appetite
3. Pronounced weight loss
4. Agitation
5. Retardation of speech and movements
6. Pronounced depression of mood
7. Depressed expression
8. Delusions
9. Constipation.

The above symptoms certainly indicate the presence of depression, but it must be remembered that depression can itself be a symptom of many things, including a physical illness. The diagnosis of depression cannot be made with confidence until physical diseases—particularly chronic ones such as anemia or carcinoma—have been ruled out.

INTERVIEWING

Seldom will the above histories be recited spontaneously by the patient. They usually require careful observation and skilled questioning. Most patients fear the diagnosis of a mental or emotional illness, and become extremely defensive if the questioning is handled in a headlong fashion.

It is much easier to begin questioning the patient about his physical difficulties, for in that area he will have no idea of the implications of his answers. Thus, it is fairly simple to elicit a significant pattern of constipation, terminal sleep disturbance, weight loss and a diurnal pattern of energy. This constellation almost always indicates depression, and that much can be obtained without the patient's becoming alarmed.

If the patients fails to volunteer more, we must follow the lead to confirm our suspicions. It is better to probe gently and gradually, and to approach the more difficult areas with caution. For example, one might proceed in this order: (1) Do you have difficulty concentrating? (2) Do you enjoy your work? (3) How does the future look to you? (4) How do you feel about yourself? (5) How do other people feel about you? (6) Have you ever thought that you might be better off dead? (7) Have you thought of suicide? (8) How would you do it? (9) Have you tried it?

The last few of these questions are ones that physicians are often reticent about asking, for fear of offending the patient. But if one follows the above pattern, gradually leading into the crucial questions, he seldom gets a negative answer, provided that the responses to the preliminary questions have been affirmative.

The history of previous depression in the patient, and a family history of depression are helpful in the diagnosis. One must ask whether the patient has had any experience in the recent past that might be responsible for his feeling of depression—events such as the loss of a loved one, failure in business, recent illness, surgery or childbirth. Depression often follows such situations.

When the patient is too defensive and gives negative answers, and when the doctor is not yet satisfied with the diagnosis, the family members should be questioned. The close relatives' observations of the patient can be diagnostic in themselves.

DIFFERENTIAL DIAGNOSIS

In addition to eliminating possible physical contributions to the patient's depression, it is also important to differentiate a clinical depression from other emotional and mental states.

Normal grief reaction. Depression, of course, is normal following the loss of a loved one or some other tragic event. A normal grief reaction, however, does not include delusions, excessive self-incrimination, excessive weight loss or sleep disturbances. Moreover, it should terminate in about six weeks.

Emotionally unstable personality (hysterical psychopath). The patient with this type of difficulty is the hardest to differentiate from the true depressive. He may threaten suicide in a very dramatic way. He often has a history of several suicide attempts, but somehow he has managed not to injure himself seriously. More often than not, the patient is a young man or woman, and almost always it is quite clear that the near-suicide has been undertaken in an attempt to manipulate the environment in some way. Commonly, the patient's wishes have been frustrated. The boy has been denied use of the family car; the girl has been jilted by her boy friend. Often the patient has slashed his wrist with a razor, and examination will show "intention" scars where previous attempts have been made. Barbiturates and aspirin are also common, but seldom in fatal doses. Although such attempts are mere gestures, and suicide is seldom truly intended, death can occur through mismanagement or unforeseen circumstances, or a true depression can develop in a person who has made such abortive attempts. Consequently, rather than disregarding them, the physician must evaluate these people individually.

Schizophrenia. The schizophrenic patient may be quite depressed, and indeed the symptoms of depression may be the first obvious ones. Yet treatment for depression in these cases, although they will relieve the depression, fail to touch the central schizophrenic pathology. These patients are much less predictable than are those with the usual depressions, and they should be put under the care of a specialist. Besides depression, one will find looseness in the patient's train of thought, and often will see inappropriate emotional reponses—laughter at a time when laughter is not indicated, or tears when there is nothing to provoke them. These symptoms are called, respectively, "looseness of associations" and "inappropriate affect."

DANGER SIGNALS

Certain symptoms and signs usually indicate that a serious depression and a suicidal tendency are present. It should be added that homicide, not infrequently, is committed by a depressed individual. He feels that the whole world is hopeless—for example, that atomic war is inevitable—and that he will do his family a favor by taking them them with him when he goes.

A deep mood of depression. This can be felt by the examiner more easily than it can ever be explained. The patient will express a feeling that the future is hopeless, that there is no escape and that there is no possibility of help.

Agitation. This is more dangerous than retardation of speech and movements, for there is energy present. Depressions are accompanied by agitation more often in older people than in younger ones, and correspondingly, we find that the older the depressed patient is, the more likely he is to commit suicide.

Severe hypochondriasis. When the patient's attention is fixed upon his symptoms, when he feels that he has a hopeless condition such as carcinoma and when his somatic symptoms have a bizarre quality—then he is in danger.

Open talk of suicide. This will occur in a calm, determined way, very much unlike the dramatic performance of the hysterical psychopath.

Severe insomnia. The patient is getting very little sleep. Insomnia is terminal as well as initial, and the patient is very much concerned about it.

Severe weight loss. Losses of from 10 to 50 lbs. over a few weeks or months are a bad sign.

Self-deprecatory ideas. These include ideas of sin and the need for punishment.

History of previous serious suicide attempts.

Delusions and hallucinations. These are usually self-deprecatory and sometimes are paranoid. Somatic symptoms may be delusional. For example, the patient may be convinced that he has a hole in his stomach.

When the patient presents any of the above symptoms, or if he develops them during treatment, it is time for the physician to tell the patient's family of the danger, and to get him into a protected environment where he can be watched and where he can receive specialized help.

Observing these points will enable the doctor to prevent most suicides. However, there will be patients who succeed in taking their own lives, despite all of the physician's precautions. They will present none of the characteristic danger signs, they will give no warning, but yet will commit suicide. We simply cannot predict the behavior of all of these patients. We can only do our best.

SUMMARY

Awareness of the likelihood and recognition of the presence of depression can result in early diagnosis. Identifying these cases promptly can save much fruitless investigation and treatment, relieve a great deal of suffering on the part of the patient, and very often save his life.

REFERENCES

1. Sloane, R. B.: Depression: diagnosis and clinical features. J. Neuropsychiat., 2:S11-S14, (Suppl. No. 1, Feb.) 1961.
2. Sheperd, M., Fisher, M., Stein, L., and Kessel, W. I. N.: Psychiatric morbidity in urban group practice. Proc. Roy. Soc. Med., 52:269-274, (Apr.) 1959.
3. Lewis, A. J.: Melancholia: clinical survey of depressive states. J. Ment. Sc., 80:277-378, (Apr.) 1934.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

An 85-year-old man was admitted to the University Hospitals for the second time during the night of October 15, 1961, complaining of sharp right-upper-quadrant and epigastric pain of 18 hours' duration. In 1950, the patient had undergone cholecystostomy at another hospital, with removal of multiple stones. The diagnosis had been acute cholecystitis and cholelithiasis. In 1952, he was first admitted to the University Hospitals because of right-upper-quadrant pain and mild jaundice. A blood urea nitrogen of 41 mg. per cent prompted a urologic investigation. Liver function studies at that time suggested low-grade obstructive jaundice. Diagnoses of congenital right hydronephrosis and double left renal pelvis were established. After a few days of hospitalization, the abdominal pain, jaundice and azotemia subsided, and the patient was discharged with no further treatment. He apparently had no further difficulties until the episode that occasioned his second and last admission to the University Hospitals.

On admission, physical examination revealed a well-nourished man with a blood pressure of 144/88 mm. Hg, a pulse of 80 and a temperature of 100.8°F. He appeared to be younger than his stated age. There was a suggestion of jaundice. Examination of the chest showed emphysema. On abdominal examination, tenderness was noted in the right upper quadrant and epigastrium. There was no rebound tenderness. Rectal examination was negative. The hemoglobin was 12 Gm. per cent, and the white blood cell count was 11,700/cu. mm. Urinalysis was negative, and the specific gravity of the urine was 1.018. Chest films showed emphysema and pulmonary fibrosis. The blood urea nitrogen was 19 mg. per cent, and the creatinine was 1.0 mg. per cent. The total bilirubin was 3.7 mg. per cent, with a direct fraction of 1.9 mg. per cent. A few hours after admission, his fever spiked to 103.7°F., but during the rest of his hospital course, his temperature remained between 99° and 102°F.

On October 16, the day following his admission, he began to vomit frequently. A nasogastric tube was passed, but he repeatedly removed it. The abdomen was noted to be less tender than it had been on the evening of his admission. Intravenous pyelograms revealed no function bilaterally. He was given appropriate intravenous fluids to meet his daily needs and losses.

On October 17, there was further subsidence of the abdominal pain. The urine output was recorded as 250 ml. for the previous 24 hours, in spite of a normal blood pressure and the administration of the appropriate kinds and volumes of intravenous fluids. The serum electrolytes were: CO_2 16.7 mEq./L., sodium 131 mEq./L., potassium 4.5 mEq./L. and chloride 103 mEq./L. Rales were heard at the right lung base. Bowel sounds were hypoactive. The serum amylase was 600 units. Chest x-ray films were as before. Abdominal x-ray films showed a pattern consistent with mild ileus; there was no free intraperitoneal air. Tetracycline, atropine and vitamin K medications were begun.

On October 18, the patient was tachypneic, oliguric (150 ml. during the preceding 24 hours), and dehydrated. There was generalized abdominal tenderness—a definite change from the previous day. Bowel sounds were absent. A serum amylase was 64 units. The white blood cell count was 5,200/cu. mm. The serum electrolytes were CO_2 16.4 mEq./L., sodium 133 mEq./L., potassium 5.3 mEq./L., chloride 105 mEq./L., blood urea nitrogen 75 mg. per cent and creatinine 4.2 mg. per cent. A paracentesis yielded 5 ml. of cloudy, yellowish fluid. Inflammatory cells with no organisms were noted on direct smear; the amylase content was 900 units. Escherichia coli was cultured from this fluid. The urine output began to rise following the administration of additional intravenous fluids, which included low molecular weight dextran. However, tachypnea persisted. By evening, the patient was severely dyspneic, with wheezing in both lungs and bilateral basilar rales. Tracheal suction was not helpful. There was obvious improvement following the application of tourniquets to the extremities, nasal O_2, and intravenous aminophyllin and morphine. He was rapidly digitalized. The CO_2 was 21.7 mEq./L. at that time.

On October 19, the patient's condition remained grave. Severe tachypnea persisted. There were signs of consolidation of both lower lung lobes,

but no wheezes or rales were present. A tracheostomy was performed, and a Byrd respirator was used to lessen the respiratory effort. The previous 24-hour urine output was 750 ml., and the specific gravity was 1.017. The serum electrolytes were: CO_2 19.5 mEq./L., sodium 133 mEq./L., potassium 4.6 mEq./L. and chloride 105 mEq./L., with a blood urea nitrogen of 85 mg. per cent and a creatinine of 5.3 mg. per cent. The abdominal findings remained unchanged. During the day, he became hypotensive, and Levophed was started with a fair response. The patient died on the morning of October 20, 4½ days after admission.

SUMMARY OF CLINICAL DISCUSSION

Dr. Joseph A. Buckwalter, Surgery: The case today will be first discussed by Mr. Butterfield, who will present the views of the junior student group.

Mr. Donald G. Butterfield, junior ward clerk: We are presented with the case of an 85-year-old man who had a history of cholecystitis and cholelithiasis, and transient episodes of right-upper-quadrant and epigastric pain, obstructive jaundice and azotemia.

In our differential diagnosis, we included the following: acute pancreatitis, either idiopathic or secondary to cholelithiasis and cholecystitis, or secondary to posterior penetrating duodenal peptic ulcer, or secondary to carcinoma of the biliary tract; or carcinoma of the head of the pancreas with cholangitis; or appendicitis with perforation.

The lack of emaciation tends to rule out malignancy. The history is not typical for duodenal ulcer. Cholelithiasis and cholecystitis are suggested by the past history of both, by mild jaundice, and by right-upper-quadrant pain which diminished with the possible passage of a stone. Acute pancreatitis is known to be one of the complications or accompaniments of cholelithiasis. Idiopathic acute pancreatitis may also give the symptoms.

The epigastric and right-upper-quadrant pain, tenderness, fever, mild jaundice and leukocytosis on admission may be explained by the involvement of the biliary tract either by gallstones and cholecystitis or by acute pancreatitis itself. The accompanying fever and vomiting may have contributed to the dehydration, thus possibly explaining the oliguria and the intravenous pyelographic demonstration of non-functioning kidneys. The right kidney may already have been non-functional, since hydronephrosis had been demonstrated in 1952. With the decreased renal function, the patient was unable to handle the normal waste products and those of the febrile episodes. Azotemia and metabolic acidosis developed, as exemplified by the elevated blood urea nitrogen and the decreased CO_2 and sodium levels, with tachypnea.

The localized abdominal tenderness decreased, possibly with the passage of a stone, but later the abdominal tenderness was generalized, bowel sounds were absent and mild ileus suggested peritonitis. The peritonitis may have been a result of the acute pancreatitis. The high serum amylase and, later, the amylase in the aspirated peritoneal fluid are quite suggestive of acute pancreatitis. Escherichia coli is a common organism in septic peritonitis caused by penetration or perforation. The absence of free intraperitoneal air rules against gut perforation. Gallstones obstructing the biliary tract can lead to cholangitis, penetration of the duct and acute pancreatitis. Thus, one could find a septic peritonitis with amylase-containing peritoneal fluid.

Further complications led to the patient's rapid deterioration. The peritonitis probably increased his dehydration, making hypovolemic shock imminent. Dextran administration moderately increased his effective circulatory volume and renal output, but this increased circulatory load may not have been beneficial. He had a history of chronic lung disease (emphysema and pulmonary fibrosis), from which we might assume right ventricular hypertrophy. Acute lung disease suggested by this man's dyspnea, rales and consolidation may have resulted from aspiration, uremic pneumonitis or hypostatic pneumonia. At any rate, the acute and chronic lung disease may already have made the heart function borderline, and with the increased circulatory load decompensation may have resulted. He responded to therapy for congestive heart failure, but later went into irreversible shock (probably bacterial in origin) and died.

Therefore, our diagnostic impression is cholecystitis with cholelithiasis and acute pancreatitis. But one must also consider idiopathic acute pancreatitis, perforating or penetrating peptic ulcer, and acute appendicitis with perforation.

Dr. Buckwalter: Thank you, Mr. Butterfield. The case will now be discussed by our guest, Dr. Stuart Welch.

Dr. C. Stuart Welch, professor of surgery, Albany Medical School: Mr. Butterfield has done a very good job, and I couldn't do a better one. Although essentially I am more or less in agreement, I'll go over the protocol in detail to see whether I can bring out anything that might be a little different.

An 85-year-old man was admitted to this hospital for the second time during the night of October 15, 1961, complaining of sharp right-upper-quadrant and epigastric pain of 18 hours' duration. He had undergone cholecystostomy in another hospital in 1950, and later he had been admitted here with mild jaundice and a suggestion of biliary colic. I think at that time we shall have to assume he had a recurrence of his gallstone colic, then with an additional common-duct stone. At the time the cholecystostomy was done he probably also had had a common-duct stone.

Now, cholecystostomy is of value as an emergency procedure, but it is not the operation of

choice and is not to be recommended if cholecystectomy can be done—because, of course, one leaves the "quarry" and more stones can form. In almost all cases in which the gallbladder is left, stones will reform within two or three years. We therefore have every reason to think that this man had recurrent cholecystic disease. Since the patient's common duct had never been explored, we have reason to think that stones had been present in this common duct for a long time.

It was found that he had a congenital right hydronephrosis and a double left renal pelvis. We know that anomalies of the urinary tract predispose to infection, and one interesting possibility is that this man may have had a chronic pyelonephritis. We know that he had a blood urea nitrogen of 41 mg. per cent at that time. On the other hand, we aren't told when that BUN was taken, whether the patient was dehydrated at the time, nor how much investigation of the kidney was done. Of course, pyelonephritis can cause a great number of bizarre abdominal complications. It can cause an ileus, for example, and can produce vomiting and bleeding from the gastrointestinal tract.

On his second admission here, the patient had a good appearance. He was slightly jaundiced, and he had tenderness in the right upper quadrant and epigastrium which again would make us think that we had acute cholecystitis or possibly a penetrating ulcer. As a rule, we don't find tenderness in that region with appendicitis. But there was no rebound tenderness, and that is a significant fact. We might interpret his tenderness as more the result of overdistention of the gallbladder or pressure on some hollow organ, rather than as the result of direct involvement of the parietal peritoneum by inflammation. Advanced peritonitis does not seem to have been likely at that point. Rectal examination was negative. The patient's laboratory tests were fairly normal. His urea nitrogen was 19 mg. per cent, and his creatinine 1.0 mg. per cent. The total bilirubin was 3.7 mg. per cent. He had a rather low urea and a normal creatinine, from which I believe—and I think Mr. Butterfield agrees—that most of his azotemia reported later in the protocol probably was prerenal in origin.

The patient spiked a fever of 103°F., but soon after admission and during the rest of his course, his fever varied from 99° to 102°F. Pancreatitis caused by calculus disease of the biliary tract is a good possibility in this man. It should be noted, however, that the patient did not vomit early in his disease. This raises the suspicion of another lesion in addition to pancreatitis. Pancreatitis secondary to common-duct stone probably is so obvious that something else was overlooked.

The frequent vomiting after admission may have been indicative of some disease of the intestine. Mr. Butterfield has been thinking of appendicitis, but I have been thinking of an intestinal obstruction or possibly of a perforated duodenal ulcer. Of course, a perforation of the gallbladder is always possible with acute cholecystitis. The patient's urinary output decreased, acidosis was noted, and his bowel sounds became hypoactive. Now, we haven't been told whether there had been anything significant about the bowel sounds hitherto. I think it is recorded that they were heard, but became hypoactive later. This might constitute evidence of an ileus from peritonitis, of either chemical or bacterial origin. Later on, an aspiration from the peritoneal cavity revealed a dark fluid from which Escherichia coli was cultured. The most common cause for such a culture would be perforation of the gut.

May we see the x-rays at this time?

Dr. Carl L. Gillies, Radiology: We have the postero-anterior and lateral films of the chest, which demonstrate a diffuse fibrosis with pulmonary emphysema.

The film of the abdomen (we also had an upright film that demonstrated no free air within the abdomen) demonstrated collections of gas both in the small and in the large bowel. These findings were interpreted as paralytic ileus. We do not have the films of the urinary tract.

Dr. Welch: Possibly there was a mechanical obstruction of the intestine. This is the small intestine, I take it.

Dr. Gillies: Yes, I think so.

Dr. Welch: Isn't that a rather unusual configuration of it?

Dr. Gillies: Yes, I'd say it is.

Dr. Welch: We must consider a possible volvulus, and we must also consider an adhesive-band obstruction, for this man had had an operation. Of course early in acute pancreatitis, the jejunum is paralytic, and late there often is quite an extensive ileus. The fact that the small-bowel distention was localized suggests that he had a mechanical obstruction. The type of peritoneal fluid that was aspirated could very well have been entirely the result of acute pancreatitis, but the same sort of thing could also be found in a patient with a perforated duodenal ulcer or a patient with a strangulated intestine. This man's serum amylase was 600 units—quite in keeping with acute pancreatitis. The drop to 64 was a rather precipitous one in a short period of time, but not unusual. Finally, the patient had pneumonia, a tracheostomy was performed, and he died.

Now my diagnosis is as follows. First, I am going to put biliary-tract stone—including common-duct stone, which I think the man had—with pancreatitis. A chronic pyelonephritis may have been present, although not responsible for his symptoms. Finally, he had pneumonia.

However, in addition to pancreatitis as the cause of his intra-abdominal disease, I think he had intestinal perforation as a result of intestinal obstruction, this obstruction being due to adhesive bands or volvulus. I don't think it was due to gall-

stone obturation, for this man's story does not fit with obturation. Then too, of course, I'd like to give secondary consideration, as Mr. Butterfield has done, to perforated ulcer or perforated gallbladder. I must say that I haven't thought seriously about appendicitis.

Dr. Buckwalter: Thank you, Dr. Welch.

Perhaps it hasn't been apparent, but the residents and staff members who took care of this man were impressed by the acute nature of the illness that resulted in his death. The clinical diagnosis was acute pancreatitis. The number-one question that concerned the staff was whether or not the patient should be operated upon. During the last two days of his life, the answer obviously was "No." By that time he was too ill to survive an operation. Should an operation have been performed during the first two days of his illness?

Dr. Arnold Tammes, Pathology: At the time of autopsy, no obvious jaundice was present.

The abdomen was quite protuberant, and upon opening it we found a localized right-upper-quadrant peritonitis with 300 ml. of purulent material in the area. In that site, a loop of distal ileum and omentum was firmly adherent to the under surface of the liver and gallbladder. There were several small areas of necrosis of the ileum, with intramural abscess formation.

A calculus, 7 mm. in diameter, was found in the common bile duct. It was located at the ampulla, just distal to the point of entrance of the pancreatic duct into the common bile duct. The lumen of the common duct was partially occluded by this calculus, and there was some bile staining of the gut contents. The duct proximal to the calculus was dilated. The gallbladder was also dilated and contained five calculi. Its wall was thickened and scarred, and chronically inflamed.

The head of the pancreas was slightly firmer than usual, and on the cut surface there were numerous small focal areas of necrosis which measured up to 2 mm. in diameter. Those foci consisted of acute necrosis of adipose tissue and small amounts of pancreatic tissue, with very little inflammatory response present. Thus the lesions had been of short duration. Most of them appeared consistent with an age of approximately 24 to 48 hours. No areas of fat necrosis were found outside of the confines of the pancreas proper.

The liver was somewhat enlarged, weighing 1,940 Gm. Grossly, it showed some acute congestion, and microscopically it also showed intracellular bile stasis and mild bile-duct proliferation.

The spleen contained an area of fresh infarction 3 cm. in diameter.

The right kidney weighed 220 Gm., and showed hydroureter and hydronephrosis. The dilated section of ureter extended 4 cm. down toward the bladder, at which point it abruptly became of normal size. There was no extrinsic obstruction, and it is felt that the defect was congenital. The left kidney weighed 180 Gm. and had duplication of the collecting system and upper 3 cm. of ureter, from which point the ureters combined to form a single, normal-sized ureter. The postmortem blood urea nitrogen was 125 mg. per cent, and the creatinine was 7.3 mg. per cent. Microscopically, the kidneys showed moderately severe nephrosclerosis and some tubular changes consistent with a mild degree of lower nephron nephrosis.

The lungs were very heavy. The right lung weighed 880 Gm., and the left one weighed 1,000 Gm. The bronchial tree contained considerable amounts of purulent material. Both grossly and microscopically, the lungs demonstrated diffuse, severe fibrosis, patchy atelectasis, severe hemorrhage and bronchopneumonia. There were large amounts of anthracotic-like pigment scattered throughout the lungs, which gave them an almost homogenous black appearance.

I should like to postulate the chain of events leading up to the death of this patient. Old adhesions between the ileum and the gallbladder region, I think, resulted from the previous gallbladder disease and surgery. Biliary colic that was present at the time of his last admission gave rise to a mild adynamic ileus. X-rays of the abdomen revealed that finding. The ileus gave rise to distention of the bowel in the area of the adhesions. Then, either overdistention or twisting of this fixed area of the bowel probably resulted in vascular compromise, with resultant edema and further vascular compromise. Finally, some areas must have become so compromised that the wall of the bowel became pervious to organisms within the abscesses of the lumen and bowel wall, and the localized peritonitis was established. Superimposed upon this was the severe pulmonary fibrosis, pneumonia and severe hemorrhage that represent the immediate cause of death. The pancreatitis appears to have been very recent and mild, and of relatively less importance than the bowel and pulmonary findings.

Dr. Buckwalter: There is an inaccuracy in the protocol, and though I don't think it influenced Dr. Welch's discussion, it is important in that it illustrates a problem that frequently confronts surgeons. Chronic cholecystitis and cholelithiasis were diagnosed in this man when he was seen in 1952. It is not altogether clear why surgery was not done at that time. Presumably, the episode of pyelonephritis, his enlarged heart and his 77 years of age were the factors that caused the surgeons who saw him at that time to rule against operative intervention. Viewed in retrospect, their decision seems to have been wrong.

Though the protocol doesn't say so, he was seen later by the Orthopedic Department for treatment of a fractured femur. Actually, there were three subsequent admissions relative to the fracture. No reference was made to the gallbladder disease. Apparently nine years and four University Hospitals admissions passed before he experienced any

further gallbladder difficulties. Hindsight suggests that an earlier operation would have circumvented the fatal episode, but this is a matter of speculation, and it is possible that he wouldn't have survived the operation.

Dr. Welch, I wonder whether you have any comments to make in this connection. What about the indications for operation in a case like this? Do you feel that there is an indication for gallbladder removal in a patient who has had a cholecystostomy?

Dr. Welch: I believe there is. As I said, the studies show that in almost all cases in which cholecystostomy has been done, stones can be found two or three years later. There are two reasons why they do. Sometimes they haven't all been removed, and even when one succeeds in getting them all, a cholecystostomy leaves the "quarry." More stones will form. Furthermore, the clear-cut indication in this man, I think, was that he had had a common-duct stone originally, one that had been there for many years, and therefore I think he had more than the usual indication for secondary surgery on his biliary tract. He showed jaundice when he came in, and I think that would have been a good indication.

There are two or three other points that I might spend a few minutes on. One is this question of operating in acute pancreatitis. Everyone is so firmly determined not to operate during acute pancreatitis that misdiagnosis is a serious affair. If the patient with symptoms and signs suggestive of pancreatitis does *not* have that disease, he usually has one that requires early remedial surgery. It is not a great error to explore a patient with pancreatitis. True, you have not helped him, but you probably haven't harmed him. If doubt exists, exploration is justified. The cases of severe, fulminating, hemorrhagic pancreatitis destined to end fatally are not influenced by an exploration. Survival depends upon the supportive therapy, and the patient can be supported just as well with an operation as without. The point is that operating probably does not greatly increase the mortality of pancreatitis.

Keep in mind that we can't always be certain of the diagnosis of acute pancreatitis. A high serum amylase can be caused by other diseases, and one should beware of accepting such a test result as evidence only of pancreatitis. Values for amylase in the blood rise in perforated duodenal ulcer, intestinal obstruction with gangrenous bowel, and other lesions.

I think there are aspects of this case that should teach us something. One of them is the plain film of the abdomen. I think it is suggestive of a local obstruction, and therefore a mechanical one. It doesn't look like an ileus. The other significant finding was the peritoneal fluid obtained by aspiration. That fluid is most typical of an intestinal leak or a contamination.

Dr. Buckwalter: Am I correct, Dr. Tammes, that you think the rather mild pancreatitis was not the important factor in causing the patient's death, and that his most important problem was cholecystitis?

Dr. Welch: The principal lesion was strangulation of the bowel, wasn't it?

Dr. Tammes: Yes.

Dr. Buckwalter: The loop of small bowel adherent to the inflamed gallbladder was the inflammatory mass underneath the right lobe of the liver?

Dr. Tammes: Yes, and it goes back to the patient's gallbladder trouble and his first surgery.

Dr. Buckwalter: You postulated that that loop of bowel had been there for nine years, Dr. Welch, and that the acute inflammatory process in the gallbladder finally caused obstruction, which in turn led to strangulation?

Dr. Welch: From the pathologist's description, I think that an adhesive-band strangulation or a volvulus had occurred.

Dr. Tammes: Yes, that is correct. The adhesive bands were very dense, and thus it seemed that they were quite old. They weren't recently-formed adhesive bands.

Dr. Buckwalter: Our clinical diagnosis was wrong. We misinterpreted the physical findings that were almost classic for acute pancreatitis.

We recently heard an exposition on the subject of pancreatitis by Dr. John Howard, and this case fits well into the classification "gallbladder pancreatitis." Dr. Howard made the point that if you can make the differential diagnosis between alcoholic and gallbladder pancreatitis, there is no indication for operation. From your discussion, I assume that you entirely agree with him. Am I correct, Dr. Welch?

Dr. Welch: Let's put it this way. I don't disagree with Dr. Howard. I fully agree that one can't help the alcoholic type of pancreatitis by operating, but I think one shouldn't hesitate to explore doubtful cases of pancreatitis. *Abdomen* comes from a Greek word meaning hidden, and that fact may be significant. One sometimes must operate to make sure of the diagnosis.

Dr. Sidney E. Ziffren, Surgery: I was interested in the fact that this patient displayed an Opie syndrome—a stone plugging the ampulla of Vater and blocking both the common bile and main pancreatic ducts. This represents the classic "common channel" theory as to the cause of acute pancreatitis. Dr. Foster, in our department, has reviewed our cases of severe acute pancreatitis. His study did not include the common type of pancreatitis which is accompanied by an elevation in serum amylase but only minimal abdominal symptoms and signs, and which subsides in 24 to 48 hours.

One must remember that there are many medical conditions that can elevate the serum amylase. A few examples are azotemia, parotitis, alcoholism, pneumonia and viral hepatitis. The amylase may also be elevated following the adminis-

tration of chlorothiazide or ACTH. Opiates are notorious for elevating the serum amylase level. Then there are a host of surgical causes other than pancreatitis that elevate the amylase level, for instance perforated ulcer, mesenteric thrombosis with infarction, high intestinal obstruction, and peritonitis of almost any degree.

At any rate, Dr. Foster's study covered those cases in which the patients had a severe illness with an elevated amylase, or in whom pancreatitis had been proved at surgery or at autopsy. In those patients who were operated upon, he found that the mortality rate had been 48 per cent, and in the patients who had had no operation, he found there had been the same mortality rate. Thus we came to the conclusion that surgery did not help, but we couldn't prove that conservative medical therapy had helped, either.

Three patients in that series had had an Opie type of mechanism. One patient came to autopsy after conservative therapy. Another patient was operated upon and was found to have a stone impacted in the ampulla. In order to remove it, the operator cut the sphincter. Postoperatively, the patient developed severe pancreatitis and died. The third patient was operated upon during an episode of acute pancreatitis, and was found to have a stone at the ampulla. The operator was able to push it through into the duodenum. That patient also died. Thus, one must come to the conclusion that this is a very serious condition, but one that fortunately doesn't occur very often.

In this patient who did have the disease, edematous pancreatitis was present, and it is much more common than the hemorrhagic or necrotic form. Actually, we don't have much to offer such a patient from a surgical viewpoint. We must assume that once the mechanism has started, there is no surgical procedure presently available that can stop it. If it is going to stop, it will do so spontaneously.

After reading the protocol, I believe the reason why this patient wasn't operated upon in 1952 was that someone thought him too old to withstand an operation. Obviously, this patient had a serious disease, including jaundice. I want to remind you that when this decision was made the patient was 76 years old. His life expectancy without disease was over eight years. I don't believe it represents good judgment to deprive such a patient of the opportunity for cure.

One of the procedures done on this patient was a paracentesis—a very helpful method of establishing a diagnosis. If one withdraws fluid by means of an abdominal tap and it has a high amylase level but in addition is cloudy, bile stained or foul smelling, you can rest assured that it is not coming from pancreatitis but from some other serious surgical disease. If it is clear or serosanguineous, or if it approaches deep purple-red in color, and if no organisms are present when one examines a smear of it, then it is very likely that the patient has pancreatitis. We don't use this procedure often enough. It can be quite helpful.

But as Dr. Welch has said, one mustn't permit his clinical judgment to be so warped by a laboratory figure that he fails to do what should be done. I am sure that he is right when he says that in a patient who has hemorrhagic or necrotic pancreatitis, exploration probably doesn't do very much to change the mortality figures.

Dr. Robert C. Hickey, Surgery: I'd like Dr. Tammes to tell us to what degree he thinks the pancreatitis contributed to the fatal outcome in this case. I'm not sure I understand where the pancreatitis fitted in.

Dr. Tammes: I think the findings indicate that the pancreatitis was so recent and relatively mild that it should be regarded as a coincidental finding —as a condition that contributed little to the fatal outcome.

Dr. Hickey: What was the cause of death, as viewed by the pathologists?

Dr. Tammes: Pulmonary complication of bronchopneumonia and extensive hemorrhage into the lungs.

Dr. Hickey: And the kidney?

Dr. Tammes: Contributory, but not intimately so.

Dr. Buckwalter: And peritonitis?

Dr. Tammes: Intimately associated.

Dr. Buckwalter: This case provides a fitting end for a postgraduate course in surgery. Most of the discussion during the past hour suggests the importance of an aggressive approach to these patients.

I'm wondering whether we can have some comments from our colleagues who don't use the aseptic scalpel.

Dr. Henry E. Hamilton, Internal Medicine: Conservative management is preferable if the signs, symptoms and laboratory findings are consistent with acute pancreatitis, but after the evidence presented here this afternoon, I think that if there are any discordant findings the surgeon should stop turning the differential diagnosis over in his mind and should take a look! Let's face it. We often have trouble getting you folks to "explore." We are not really conservative with your surgical skill!

Dr. Buckwalter: I wonder whether everyone in this room knows that you had one year as a resident in surgery.

Dr. William B. Bean, Internal Medicine: And then he started thinking.

Dr. Buckwalter: Are there any comments or questions from the doctors who are visiting us today?

The meeting is adjourned.

PATHOLOGIC DIAGNOSES

Peritonitis, localized, right upper quadrant
Patchy necrosis of ileum

Chronic cholecystitis and cholelithiasis
Choledocholithiasis
Pulmonary fibrosis and anthracosis
a. bronchopneumonia
b. hemorrhage (terminal event)
Fat necrosis of pancreas, acute
Splenic infarct
Mild lower nephron nephrosis
Reduplicated calceal and pelvic systems, left kidney
Congenital hydronephrosis, right kidney.

STUDENTS' DIAGNOSES

Cholecystitis with cholelithiasis and acute pancreatitis.

DR. WELCH'S DIAGNOSES

Biliary tract stone and common duct stone, with pancreatitis
Pneumonia
Intestinal perforation as a result of obstruction due to adhesive bands or volvulus.

CLINICAL DIAGNOSIS

Acute pancreatitis.

Coming Meetings

IOWA

May 13-16 **Annual Meeting of the Iowa Medical Society.** Veterans Auditorium and Savery Hotel, Des Moines

May 23 **Symposium, afternoon and evening (Lee County Medical Society and the Iowa Chapter of the American Academy of General Practice).** Golf and Country Club, Fort Madison

June 18-21 **Spring Postgraduate Conference (Iowa Chapter of the American Academy of General Practice).** The New Inn, Lake Okoboji

CONTINENTAL U. S.

May 1-2 **American Broncho-Esophagological Association.** Sheraton-Dallas Hotel, Dallas

May 1-3 **American Laryngological, Rhinological and Otological Society, Inc.** Sheraton-Dallas Hotel, Dallas

May 1-5 **American Association on Mental Deficiency.** Statler Hotel, New York City

May 3-5 **American Association for the History of Medicine, Inc.** Ambassador Hotel, Los Angeles

May 3-5 **American Association for Cleft Palate Rehabilitation.** Netherland Hilton Hotel, Cincinnati

May 4-5 **American Laryngological Association.** Sheraton-Dallas Hotel, Dallas

May 4-6 **Society of Biological Psychiatry.** Royal York Hotel, Toronto, Canada

May 4-7 **American Psychoanalytic Association.** Royal York Hotel, Toronto, Canada

May 5-9 **108th Annual Meeting of the North Carolina Medical Society.** William Neal Reynolds Coliseum (State College Campus). Sir Walter Raleigh Hotel, Raleigh, N. C.

May 6-10 **American Society for Microbiology.** Muehlebach Hotel, Kansas City, Missouri

May 6-10 **American Association of Plastic Surgeons.** Hotel Del Coronado, Coronado, California

May 7-11 **American Psychiatric Association.** Royal York Hotel, Toronto, Canada

May 7-11 **General Surgery.** Cook County Graduate School of Medicine, Chicago

May 7-11 **Advances in Medicine.** Cook County Graduate School of Medicine, Chicago

May 8-10 **Society for Pediatric Research.** Traymore Hotel, Atlantic City

May 9-11 **American Association of Genito-Urinary Surgeons.** Skytop Lodge, Skytop, Pennsylvania

May 9-12 **American Thyroid Association.** Roosevelt Hotel, New Orleans

May 9-13 **Student American Medical Association.** Mayflower Hotel, Washington, D. C.

May 10-11 **American Pediatric Society.** Traymore Hotel, Atlantic City

May 10-12 **Ear, Nose and Throat.** University of California, San Francisco

May 13-17 **Annual Meeting of the Illinois State Medical Society.** Hotel Sherman, Chicago

May 14 **Medical Alumni Seminar (University of Illinois College of Medicine).** Hotel Sherman, Chicago

May 14-16 **Fundamental and Applied Aspects of Cardiology (American College of Physicians).** Wayne State University College of Medicine, Detroit

May 14-17 **American Urological Association.** Bellevue-Stratford Hotel, Philadelphia

May 14-17 **Surgery.** University of Kansas School of Medicine, Kansas City, Kansas

May 14-18 **American Nurses' Association.** Detroit

May 14-18 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

May 14-18 **Blood Vessel Surgery.** Cook County Graduate School of Medicine, Chicago

May 15 **Rehabilitation in the Older Patient.** University of Kansas School of Medicine, Kansas City, Kansas

May 15-16 **International Symposium on "Injury, Inflammation and Immunity" (Research Departments of Miles Laboratories, Inc.).** Elkhart, Indiana

May 16-19 **Expanded Surgery of the Nasal Septum and Closely Related Structures (American Rhinologic Society).** St. Michael Hospital, Milwaukee

May 17-18 **Proetology.** University of California, San Francisco

May 20-23 **57th Annual Meeting, American Thoracic Society.** Deauville and Carillon Hotels, Miami Beach

May 20-25 **National Tuberculosis Association.** Deauville Hotel, Miami Beach

May 21-23 **109th Annual Meeting of the Minnesota State Medical Association.** Hotel Leamington and the Minneapolis Auditorium, Minneapolis

May 21-24 **Catholic Hospital Association Convention.** Kiel Auditorium, St. Louis

May 21-25 **The Neurology of Diseases of Internal Medicine (American College of Physicians).** Harvard Medical School, Boston

May 21-25 **General Practice Review.** Cook County Graduate School of Medicine, Chicago

May 21-25 **Breast and Thyroid Surgery.** Cook County Graduate School of Medicine, Chicago

May 24-26 **Genetics.** University of California, San Francisco

May 26 **Inhalation Therapy.** Stanford University School of Medicine, Palo Alto, California

May 26-30 **American Society of Maxillofacial Surgeons.** Montreal, Canada

May 28-30 **Tenth Annual Western Cardiac Conference.** University of Colorado Medical Center, Denver

May 28-30 **American Ophthalmological Society.** The Homestead, Hot Springs, Virginia

May 28-30 **First Annual Convention of the American Association for Contamination Control.** Jack Tar Hotel, San Francisco

May 29-June 2 **American College of Cardiology.** Denver Hilton Hotel, Denver

May 31-June 2 **American Gynecological Society (Members and Invited Guests).** The Homestead, Hot Springs, Virginia

June 1-2 **Medical Emergencies.** U.C.L.A., Los Angeles

June 1-3 **Back Pain.** University of California, San Francisco

June 1-29 **Internal Medicine.** Harvard Medical School, Boston

June 2 **Lederle Symposium.** Davenport Hotel, Spokane, Washington

June 4-8 **Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago

June 4-8 **Psychiatry for the Internist (American College of Physicians).** The Psychiatric Institute, University of Maryland School of Medicine, Baltimore

June 4-8 **Hematology.** Cook County Graduate School of Medicine, Chicago

June 4-9 **Histochemistry.** University of Kansas Medical Center, Kansas City, Kansas

June 4-9 **Basic Science and Its Relation to Internal Medicine.** Harvard Medical School, Boston

June 4-15 **Surgical Technic.** Cook County Graduate School of Medicine, Chicago

June 4-22 **General Surgery.** Harvard Medical School, Boston

June 4-22 **Forty-seventh Annual Postgraduate Session of the Trudeau School of Tuberculosis and Other Pulmonary Diseases.** Saranac Lake, New York

June 7-9 **Corneal Lens: Theory and Application.** University of California, San Francisco

June 10-16 **General Surgery.** University of Nebraska College of Medicine, Omaha

June 11-16 **Histochemistry.** University of Kansas Medical Center, Kansas City, Kansas

June 11-22 **Fractures and Traumatic Surgery.** Cook County Graduate School of Medicine, Chicago

June 11-22 **Neuromuscular Diseases.** Cook County Graduate School of Medicine, Chicago

June 14-17 **American Electroencephalographic Society.** Claridge Hotel, Atlantic City

June 17-23 **Obstetrics and Gynecology.** University of Nebraska College of Medicine, Omaha

June 18-20 **American Geriatrics Society.** Palmer House, Chicago

June 18-20 **American Neurological Association.** Claridge Hotel, Atlantic City

June 18-20 **Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago

June 18-22 **Advanced Electrocardiography.** Cook County Graduate School of Medicine, Chicago

June 18-22 **Canadian Medical Association.** Royal Alexandria Hotel, Winnipeg

June 18-22 **Annual Educational Conference, National Association of Sanitarians.** Cincinnati

June 21-22 **American Rheumatism Association.** Edgewater Beach Hotel, Chicago

June 21-23 **Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago

June 21-23 **Endocrine Society.** Palmer House, Chicago

June 21-24 **American Therapeutic Society.** McCormick Place, Chicago

June 21-25 **Twenty-eighth Annual Meeting of the American College of Chest Physicians.** Morrison Hotel, Chicago

June 22-23 **Urology.** Stanford University School of Medicine, Palo Alto, California

June 22-24 **International College of Angiology.** Conrad Hilton Hotel, Chicago

June 23 **Community Preparedness for Emergencies—Tenth Annual National Conference on Disaster Medical Care (AMA).** Palmer House, Chicago

June 23 **International Cardiovascular Society, North American Chapter.** Conrad Hilton Hotel, Chicago

June 23 **American Academy of Tuberculosis Physicians.** Palmer House, Chicago

June 23 **Annual Meeting of the American Association for the Study of Headache.** Palmer House, Chicago

June 23-24 **American Diabetes Association, Inc.** Conrad Hilton Hotel, Chicago

June 24 **Society for Vascular Surgery.** Conrad Hilton Hotel, Chicago

June 24 **Society for Surgery of the Alimentary Tract.** Sheraton-Chicago, Chicago

June 24-28 **111th Annual Meeting of the American Medical Association.** Chicago

June 25-27 **Obstetrics and Gynecology.** University of Colorado Medical Center, Denver

June 25-29 **Vaginal Surgery.** Cook County Graduate School of Medicine, Chicago

June 25-July 6 **Electrical Technics in Biology and Medicine (Case Institute of Technology).** University Circle, Cleveland

June 27-30 **Ninth Annual Meeting, Society of Nuclear Medicine.** Baker Hotel, Dallas

June 28-30 **International Conference on Opportunistic (Secondary) Fungus Infections.** Durham, North Carolina

ABROAD

May **World Health Organization,** Palais de Nations, Geneva, Switzerland. Write: Secretary-General, World Health Organization, Palais de Nations, Geneva

May-June **European Surgical Clinics Tour (International College of Surgeons).** England, The Netherlands, Germany, Italy, France, Switzerland. For Information Write: Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10

May 3-6 **106th Annual Meeting of the Hawaii Medical Association,** Honolulu.

May 4-6 **International Society of Ski Traumatology and Winter Sports Medicine.** Obergurgl, Tyrol, Austria. Write: Professor Dr. Wolfgang Baumgartner, Chirurg. University Klinik, Innsbruck, Austria

May 13-19 **World Congress of Gastroenterology,** Munich, Germany. Write: Medizinische Universitatsklinik, Krankenhausstrasse 12, Erlangen, Germany

May 14-18 **International Congress on Hormonal Steroids,** Milan, Italy. Professor L. Martini, Instituto de Farmacologia é Terapia, 21 Via A. del Sarto, Milan

May 15-19 **Congress of the European Federation (International College of Surgeons).** Amsterdam, The Netherlands

May 21-July 9 **Medical Centers of Europe (University of Southern California).** Tuition: Part A. London, Stockholm, Copenhagen and Paris (May 21-June 15) $250; Part B. Italy (June 16-30) $150; Part C. Greece (June 30-July 9) $75. For information write: Phil R. Manning, M.D., Associate Dean, Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Ave., Los Angeles 33

May 26-30 **International Congress for Hygiene and Preventive Medicine.** Vienna, Austria. Write: Med.-Rat Dr. Ernst Musil, Mariahilferstrasse 177, Vienna 15

May 27-31 **American Orthopaedic Association (Members).** Castle Harbor Hotel, Bermuda

June 16-21 **International Symposium on Enzymic Activity in the Central Nervous System,** Goteborg, Sweden. Write: Dr. A. Lowenthal, Institut Bunge, 59 rue Philippe Williot, Berchem-Antwerp, Belgium

July 1-4 **International Conference on Oral Surgery.** Royal College, London. Write: D. C. Trexler, Executive Secretary, American Society of Oral Surgeons, 840 North Lake Shore Drive, Chicago 11

July 8-12 **International Congress of Psychosomatic Medicine and Childbirth.** Paris. Contact: Dr. L. Chertok, 22 rue Legendre, Paris 17, France

July 28-Aug. 3 **Pan American and South American Pediatric Congress.** Quito, Ecuador. Write: Dr. Jorge Vallarino, P.O. Box 2269, Quito, Ecuador

July 30-Aug. 13 **Fifth Annual Refresher Course (University of Southern California).** Royal Hawaiian Hotel, Honolulu, and on *S. S. Matsonia.* Address: Phil R. Manning, M.D., Associate Dean Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Avenue, Los Angeles 33

Aug. 8-15 **International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York

Sept. 3-7 **First International Conference on Water Pollution Research.** London. Write: Mr. W. Wesley Eckenfelder, Jr., Manhattan College Environmental Engineering Research Laboratory, 514 Sylvan Avenue, Englewood Cliffs, New Jersey

Sept. 5-8 **International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany

Sept. **International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest

Sept. **Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London

Oct. **American Society of Plastic and Reconstructive Surgery,** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadhent, M.D., Secretary, 508 East South Temple, Salt Lake City

Oct. 7-13 **World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.

Oct. 22-28 **International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.

Nov. 11-16 **World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19

Dec. **International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines

Feb. 20-24, 1963 **Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Editorials

Causes of Death Following Burns

A report by Phillips and Cope[1] on the causes of death in patients with burns at Massachusetts General Hospital over a 20-year period reflects the changes that have been brought about by improved methods of treatment. The records of 1,140 patients admitted between 1939 and 1957 were examined, and the case records of 932 of them were studied in detail. Death had occurred in 106 cases, and the clinical records, laboratory findings, x-ray reports and, when available, autopsy findings were considered in an effort to detect the cause of death in each instance.

In 1939 and shortly thereafter, 20 per cent of all deaths from burns were the results of shock, and the patients died within the first 25 hours. From 1948 to 1957, only one patient, a woman with burns over 95 per cent of her body, was thought to have died of shock. Of the 11 other deaths that occurred within the first two days, 8 were attributed to respiratory damage, 2 to congestive failure and 1 to a cerebrovascular accident. It thus is apparent that shock has greatly declined in importance as a cause of death in burn cases during recent years.

An apparent doubling of deaths from wound sepsis in 1948, as compared with the 1939-1947 period, is actually an artifact due to the lengthening of the survival time in patients with fatal burns. During the earlier period, the survival time in fatal cases averaged 4.6 days, in contrast with a survival time of 15.7 days during the 1948-1957 period. In the earlier decade, wound sepsis accounted for 9.0 per cent of 52 deaths, whereas in the later period, wound infection killed 20 per cent of those who died from burns. It is the increased survival time that was responsible for the increased prominence of wound sepsis in the first six days, and the elimination of all patients who died within the first six days in both periods abolishes the apparent increase in the incidence of fatal wound sepsis. If only those patients who survived beyond six days are considered, the death rate from wound sepsis in the early period is increased from 9.0 per cent to 35.0 per cent, and the rate for the 1948-1957 period becomes 33 per cent.

The deaths of 45 per cent of all those fatally burned during the 20 years were caused by respiratory damage, with or without infection. Bronchopneumonia was a terminal event in many patients who died from other causes. In 1934-1947, respiratory-tract damage killed twice as many patients as did shock, and between 1948 and 1957, it killed 22 times as many. The increase in this ratio was the result, however, of the drop in numbers of deaths from shock, rather than an increase in the incidence of damage to the respiratory tract. Respiratory-tract damage has remained almost constant, with or without infection in the damaged respiratory tract. Forty-three per cent succumbed from this cause in the early years covered by this study, and 42 per cent in the later decade. A study of the survival times reveals that with a single exception all patients having respiratory damage in either period developed superimposed sepsis if they lived more than 72 hours. Thus, the prime killer of the burn patient is and has been for two decades respiratory-tract damage.

According to the report from Massachusetts General Hospital, deaths from uremia are on the increase among burn patients, even though the mortality in the shock phase has been cut in two. In patients surviving beyond eight days, one of 11 patients died of uremia in the first of the two decades. In 1948-1957, of 22 patients who survived beyond the eighth day, three died of uremia alone, and one died from uremia and wound sepsis. Eight patients in the two periods who succumbed to cardiac complications had preexisting cardiac disease. Pulmonary emboli caused the deaths of three patients during the 20-year period, and were found in at least seven more patients. In at least three and possibly in all four patients with phlebitis, the vein had been used for venoclysis. Massive adrenal hemorrhage accounted for the death of one patient in the early period, and in four other cases adrenal hemorrhage, found at autopsy, may have contributed to the fatal outcome. A small number of deaths were ascribed to preexisting illnesses, associated injuries and additional complications.

Phillips and Cope concluded that respiratory-tract damage was the major killer of the burned patient, and that the mortality from that cause had not improved in the 20-year period. Evans[2] stated, in 1952: "In our clinic in the past year, respiratory-tract burn was responsible for fully half of the deaths." Despite the use of antibiotics, of tracheotomy, of suction, of oxygen and of steroids, there has been no improvement in the mortality from that cause.

Death from shock in the burned patient is now quite uncommon. Evans outlined the treatment of shock in the burned patient, and greatly influenced the management of that condition. Reports from various centers, however, have described specific programs that differ in certain details from the regime of Evans in regard to the amount of fluid, the type of electrolyte used and the nature of the colloid administered.

The authors from Massachusetts General Hospital stated that the increase in fatal wound in-

fections and respiratory-tract sepsis is related to the survival time. Though the increase in survival time is encouraging, to lose a patient from sepsis after weeks of survival emphasizes the need for controlling that condition. MacMillan[3] recommended in 1958 that all confluent areas of full-thickness burns involving at least 25 per cent of the body surface be excised. He reported on his experience with that method and with either autograft or homograft coverage performed immediately or 48 hours after excision. In his series of cases, the mortality rate in the excised group was 42 per cent, as compared with 75 per cent in the group treated by conventional methods. He concluded that early excision and early coverage influenced the incidence of septicemia.

Ravdin[4] stated: "In burns of limited extent that are obviously full-thickness burns, early excision and grafting is the best treatment. In the patient with extensive burns, the additional trauma of anesthesia and operation may be contraindicted in the early stages of the burn. Excision of the dead skin, however, once carried out, will improve the patient's condition at any stage. It is then a question of balancing these two factors with the fact that obvious full-thickness burns should be excised as soon as the patient can stand the operation." Farmer[5] and Hyroop,[6] among others, have also emphasized the importance of early excision and early coverage in the prevention of wound infection.

A second- or third-degree burn over more than 10 per cent of the body surface should be considered a major injury. The successful treatment of the severely burned patient taxes the skill and the judgment of a team of physicians who are dedicated to the management of that condition. With the increased survival times of burned patients, it appears that perhaps early excision and early coverage may be increasingly important in reducing the incidence of death from infection.

REFERENCES

1. Phillips, A. W., and Cope, O.: Burn therapy: II. revelation of respiratory-tract damage as principal killer of burned patient. Ann. Surg., **155**:1-19, (Jan.) 1962.
2. Evans, E. I.: Early management of severely burned patient. Surg., Gynec. & Obst., **94**:273-282, (Mar.) 1952.
3. MacMillan, B. G.: Early excision of more than 25 per cent of body surface in extensively burned patients. AMA Arch. Surg., **77**:369-375, (Sept.) 1958.
4. Ravdin, I. S.: Current status of therapy of burns. J.A.M.A., **171**:1357-1358, (Nov. 7) 1959.
5. Farmer, A. W.: Management of burns in children. Pediatrics, **25**:886-895, (May) 1960.
6. Hyroop, G. L.: Importance of early coverage in treatment of burns. J. Int. Coll. Surg., **34**:363-367, (Sept.) 1960.

YOU'LL HEAR ABOUT . . .
. . . the future of cancer chemotherapy . . .
at the
IMS ANNUAL MEETING
May 13-16, 1962
Veterans Memorial Auditorium, Des Moines

New Adverse Reaction to the Tetracyclines

The wide use of the tetracyclines has given rise to several side effects with which most clinicians are familiar. The commonest of these has been gastroenteritis, but angioneurotic edema, skin rashes and anaphylaxis are rarer complications that have been reported. Now John P. Fields,* of the Vanderbilt School of Medicine, has called attention to another adverse reaction with which physicians who treat infants should become familiar. Tetracyline-induced intracranial pressure, with bulging of the anterior fontanel, had been observed by members of the Vanderbilt pediatric staff, and Lewis reported in detail on two infants with the complication who were studied at that hospital.

A four-month-old baby boy who had been ill for 36 hours with cough, fever and loss of appetite, was seen by a physician and a diagnosis was made. Tetracycline was given in a dosage of 50 mg. every six hours. When the infant was seen initially, the anterior fontanel had been examined and had been normal. Twelve hours later, however, after four doses of the antibiotic, he vomited and became irritable, and examination by the physician revealed a markedly bulging fontanel. When admitted to the hospital, the baby was lethargic, and the tense fontanel was again observed. Lumbar puncture revealed a clear spinal fluid under increased pressure. There were no cells, and cultures were sterile. The spinal fluid sugar and protein were normal. Bilateral subdural taps were done, but no fluid was obtained. Roentgenograms of the skull showed questionable spreading of the sutures, and the bulging fontanel was noted. The administration of tetracycline was discontinued, and the patient was observed for 48 hours. Immediately after the lumbar puncture, the bulging fontanel returned to normal. The infant remained afebrile and made a prompt recovery, with no recurrence of the intracranial hypertension.

A second patient, a six-month-old baby girl with bronchitis who had been ill for four days, was started on tetracycline phosphate complex in a dose of 50 mg. every six hours, and upon her admission to the hospital it was noticed that the fontanel was tense and bulging. The cerebrospinal fluid was clear and contained one white cell per cubic milliliter. The spinal fluid sugar and protein were normal, and the culture was negative. The tetracycline was discontinued, and chloramphenicol was substituted for it. The bulging of the fontanel disappeared within a few hours and did not recur.

The relationship between tetracycline therapy and increased intracranial pressure appeared to be more than mere coincidence. Withdrawal of the

* Fields, J. P.: Complication of tetracycline therapy in infants. J. PEDIATRICS, **58**:74-76, (Jan.) 1961.

drug was associated with a prompt return of the fontanel to normal. There was no correlation between either the dosage of the drug or the duration of therapy and the bulging of the fontanel. There was no evidence of meningitis or subdural hematoma in either patient, and otitis media was not present.

Careful evaluation of patients with bulging fontanels should be carried out, and other causes should be excluded before a diagnosis of tetracycline reaction is made. Bulging of the fontanel ordinarily has serious implications, and in infants receiving tetracycline therapy this newly discovered complication should be considered in the differential diagnosis. Awareness of this adverse reaction may spare the physician some very anxious moments.

The Guillain-Barré Syndrome

The Guillain-Barré syndrome is an acute polyradiculoneuropathy with progressive motor and sensory disturbance of the cranial and spinal nerves, and with an albuminocytologic dissociation of the spinal fluid. Though the elevation of the spinal fluid protein, with no increase in the spinal-fluid cell count, is well recognized in this interesting neurologic disease, the pathologic process which gives rise to it is not generally known or understood. In 1958, Berlacher and Abington[1] presented a concise description of the pathology, giving a clear explanation for the neurologic findings, the high spinal-fluid protein and the normal cell count.

According to Berlacher and Abington, the outstanding feature of the pathology in Guillain-Barré syndrome is the pronounced edema of the nerve fibers of the spinal roots and the proximal portions of the cranial and peripheral nerves. A similar edematous involvement of the spinal-cord tracts has been described. The edema of the axones leads to a narrowing and obliteration of the perineural spaces and, if severe, to a strangulation of the radicular nerve trunks. As a result of the strangulation there is a degeneration of the myelin sheaths, with a loss of nerve-fiber function. This leads to a flaccid paresis or paralysis, with loss of reflexes and characteristic sensory disturbances. The inflammation which has been described in the peripheral nerves can be explained as being secondary to cellular and myelin-sheath degeneration.

The obliteration of the perineural spaces blocks the absorption of spinal fluid along these channels, and results in a strangulation and trapping of the fluid within the subarachnoid space. The result is comparable to that of a spinal-fluid block produced by a space-occupying lesion. The obstruction permits the escape of water and electrolytes, but not of the large protein molecules, thus producing the albuminocytologic dissociation. Capillary damage may be a contributing factor, resulting in increased permeability and leakage of protein into the spinal fluid. The normal spinal-fluid cell count is attributed to a minimal inflammatory involvement of the meninges.

Osler and Sidell[2] have pointed out that there is need for more exact criteria for the diagnosis of the Guillain-Barré syndrome, because the diagnosis has become confused by the inclusion of many types of polyneuritis. It is urged that the designation "Guillain-Barré syndrome" be restricted to those cases that conform with a characteristic clinical picture, course and prognosis.

According to the Boston physicians, there are 12 criteria for the Guillain-Barré syndrome. The disease usually begins from one to three weeks after an infection, most frequently a respiratory one. It may occur after one of the exanthemata, but there is always an interval between the exanthematous illness and the onset of the syndrome. The disease occurs at all ages and in both sexes, and the patient is ordinarily afebrile when admitted to the hospital. Dysesthesias of the feet or hands, or both, usually precede the onset of paralysis. Symmetrical weakness, usually of the proximal muscles of the legs and often of the arms, develops rapidly. On occasion, the distal muscles are first involved. Severe involvement of the trunk muscles is uncommon. The muscle weakness spreads for some time, but it is unusual for it to continue for more than two weeks. Objective sensory loss is unusual, and characteristically it varies even during a single day. The most common finding is a fading "glove and stocking" hyperesthesia and hypalgia. There may be transient difficulty in voiding, but severe bladder involvement requiring catheterization is not a part of the syndrome. Deep-tendon reflexes are lost, or in mild cases are symmetrically reduced. Cranial nerves—most frequently the seventh—are often involved on one or both sides. It is thought that there is never an involvement of either the optic or the auditory nerves. Improvement begins about the third week, and it continues without relapses. A spinal-fluid cell count over 10 should raise a serious doubt about the diagnosis, though a rise in protein is always present. A complete functional recovery, without residuals, occurs in six months, and recovery is usually sufficient for discharge from the hospital in three months. Reflexes may be reduced for a long time. In rare instances, death occurs early as a result of respiratory failure.

If the examination of the patient reveals other abnormalities than those that have been described, one should suspect some other form of polyneuritis rather than Guillain-Barré syndrome. By using the term "Guillain-Barré syndrome" loosely—by applying it to cases with much greater involvement (the non-specific polyneuritides)—we can render it

meaningless. It should be reserved for the cases that satisfy the criteria that have been enumerated.

1. Berlacher, F. J., and Abington, R. B.: ACTH and cortisone in Guillain-Barré syndrome: review of literature and report of case following primary atypical pneumonia. ANN. INT. MED., 48:1106-1118, (May) 1958.
2. Osler, L. D., and Sidell, A. D.: Guillain-Barré syndrome: need for exact diagnostic criteria. NEW ENGLAND J. MED., 262:964-969, (May 12) 1960.

Parental Guidance and Leadership

An article in a recent issue of LOOK told the story of a high school lad who had won a prize at the National Science Fair by exhibiting a plasma jet generator which he had built in his own home, after many months of hard work and after many disappointments. Much of the credit for the boy's accomplishment was given to his mother, who had reared her family on the premise that "occupation is dedication."

While on a trip west, this writer recently heard a prominent physician make a similar tribute to his home and to his parents. The doctor spoke with eloquence and reverence of his mother and father. He was one of 14 children brought up in a home where discipline was firm but affection was warm, where industry was gospel, and where scientific inquiry and the pursuit of knowledge were encouraged and guided. Of the 14 children, all earned college degrees, and most of them went on to take advanced training. Two of the boys have become physicians and have made notable contributions to medicine. The father left only a negligible estate, but he had considered himself rich beyond measure.

One of the handicaps of modern America is the lack of "chores" for youths in the average home. But through the exercise of imagination and ingenuity, the wise parent can find substitutes for the wood chopping, milking, and comparable duties which were assigned to earlier generations of youngsters. Somehow, youths must learn the rewards of a difficult task well done, and must learn the disappointments that attend a poor performance. The busy, happy lad is rarely a problem child.

Well-educated and intellectually-inclined parents today can give their children more than the manual skills and the respect for work and thrift that old-fashioned chores inculcated. Scientific curiosity, and an impetus to pursue knowledge and to utilize intellectual capacity wisely come in most instances from parental inspiration, direction and example. The responsibility cannot be left to the school. In counseling parents, the physician and the teacher can contribute generously to the welfare of youth by urging parental participation in the intellectual activities of their children—in helping them find satisfaction in serious mental effort as well as in strenuous physical activity.

Unfortunately, too many fathers seem to dodge this responsibility, and later express disappointment over their child's failure to utilize his talents. Parental inspiration, guidance and example must be provided consistently, starting in the youngster's early childhood, if they are to be effective. Erratic efforts by confused parents are self-defeating. Undue pressures and the setting of too high standards of performance can do irreparable harm. Expectations which exceed the intellectual capacity or degree of maturity of the son or daughter will be frustrating to both parent and child.

Learning should be pleasant and rewarding, and it should be tempered with deep affection.

Corrections

In the panel discussion on the drinking and driving problem that we published in the March, 1962, JOURNAL, we made some mistakes in reproducing the statements made by Horace E. Campbell, M.D., of Denver.

The sentences that conclude the paragraph at the top of the right-hand column on page 110 should have read: "What is .15 per cent blood alcohol? Of course it is exactly three times .05 per cent, but in order to acquire it a man probably has had to consume more than six ounces of 100-proof whiskey or eight ounces of the 80-proof stuff. He may have had to consume eight ounces of 100-proof liquor, for there will have been a certain amount of oxidation in the liver and alcohol-loss by breathing."

The final sentences of the next-to-last paragraph in the left-hand column on page 111 should have read: "For example, blood alcohol is tested on the body of everyone who has died within six hours of an automobile crash in the State of Maryland. The results show that 69 per cent of those individuals had been drinking, and 40 per cent of all those tested—not 40 per cent just of those who had been drinking, but 40 per cent of all drivers involved in fatal accidents—have had blood-alcohol percentages of .15 or more.

Then, the last sentence in the first whole paragraph at the top of the second column on page 111 should have read: "The findings in that state, as I have said, are that 69 per cent of drivers involved in fatal accidents had been drinking, and that 40 per cent of them had blood-alcohol percentages of .15 or more."

Orchitis and Infectious Mononucleosis

Infectious mononucleosis is a disease of unknown etiology which occurs frequently in the younger age groups and is characterized by protean symptoms. Complications involving almost every organ of the body have been described, from encephalitis to interstitial nephritis.

A recent report by Wolnisty* described a new

*Wolnisty, C.: Orchitis as complication of infectious mononucleosis; report of case. NEW ENGLAND J. MED., 266:88, (Jan. 11) 1962.

complication of the disease—an acute orchitis in a 16-year-old boy. The patient was referred to the hospital with a diagnosis of acute orchitis, atributable to epidemic parotitis. The history revealed that the patient had had mumps at four years of age. Physical examination and laboratory studies established a diagnosis of infectious mononucleosis.

Knowledge that orchitis does occur as a complication of infectious mononucleosis may save the physician and the patient considerable anxiety, and perhaps may spare the physician a measure of embarrassment.

AMA Urges School Health Exams

The AMA's continuing support of periodic health examinations for school children enters a new and challenging phase with the recent announcement that it will give full cooperation in implementing a nationwide school health examination campaign. The project is a vital part of the program sponsored by the President's Council on Youth Fitness, which was formed in 1959 under former President Eisenhower and is being continued under President Kennedy. Charles B. Wilkinson, football coach at the University of Oklahoma, heads the Council.

The AMA is urging every medical society to start these examinations, if they are not already routine in their respective communities. Letters were sent to all component societies by AMA president Leonard W. Larson, M.D., alerting them to the program and urging them to cooperate with school authorities and other interested groups in setting up locally acceptable procedures for student health exams.

Dr. Larson said, "Physical fitness must rest upon firm foundations of health. Medical leadership is essential in assuring these basic foundations. One of the key factors in the process is the arrangement of periodic medical examinations for youths of school age which may best be given by the family physician. Such examinations are an important phase of preventive medicine, but also serve a valuable function in classification of youths for participation in physical activity."

Enclosed with the letters to medical societies were suggested procedures developed by the National Committee on School Health Policies, which will help guide societies in developing examination programs at the local level. It is recommended, for example, that school children be given a minimum of four periodic medical exams during their school years—at the time of entrance to school, during the intermediate grades, at the beginning of adolescence, and before leaving school. They should be comprehensive, and informative enough to "guide school personnel in proper counseling of the student, and sufficiently personalized to provide a desirable educational experience."

In setting up a health examination program for students, it is suggested first that the project be assigned to the school health committee or other appropriate group in the local medical society, and that a meeting be arranged between that committee and the school authorities and local health department personnel, to survey present arrangements for periodic exams. Decisions must then be made on a variety of questions such as where examinations shall be given—at the family physician's office, at the school, or elsewhere—who shall examine indigent children and those without family physicians, what kinds of records shall be kept of the examination findings, and how recommendations are to be interpreted to parents and to school personnel.

Specific suggestions for dealing with these and other questions are outlined in two publications, "Health Appraisal of School Children" and "Suggested School Health Policies," which are being forwarded by the AMA to all local medical societies.

The AMA's New Department of Medicine and Religion

"How to provide better health care for 'the whole man.' That is the chief concern of our new department." This is the Rev. Dr. Paul B. McCleave's nutshell definition of the American Medical Association's new Department of Medicine and Religion which he heads.

The department was opened last September with the goal of encouraging closer relationships between physicians and clergymen in patient care. "Too often today," Dr. McCleave says, "we forget to consider 'the whole man.' We forget the patient and parishoner's needs in total health—physical, mental and spiritual. The three are not separable." Dr. McCleave feels that the best patient care is achieved when physicians and clergymen are able to share mutual concern for the patient and when each contributes his special talents to the problem at hand.

Terminal illness, he points out, is an excellent example of an area in which the clergy can be of particular help to physicians.

The new department will foster close physician-clergy relationships through programs carried out on the local medical society level and tailored to fit local needs. Dr. McCleave is currently working with medical society leaders and physicians in nine states where pilot programs will be launched. These states, chosen as a representative cross-section of the entire nation, are: Arizona, Georgia, Iowa, Maryland, Montana, New York, Ohio, Texas and Utah. In both the pilot programs and those which will follow, the new department will work through state, county and local medical societies as a servicing and counseling department of the AMA. Specifics of the programs will be determined by local medical societies.

Another project of the new department will be the creation—on the state level—of leadership teams of physicians and clergymen, including psy-

chiatrists and hospital chaplains. Using theoretical case studies, these teams will present programs to various medical and religious gatherings showing how teamwork can be utilized for better patient care.

Dr. McCleave lists two other key functions of his department:

—The encouragement of closer relations between pastors and physician members of their churches to discuss health and spiritual programs.

—The preparation of articles and editorials for the medical and religious press. Early articles will seek to define the patient's total health needs and point up the philosophy of "the whole man."

Dr. McCleave says his department also plans close liaison with hospital chaplains, mental health authorities and pastoral clinical training centers, furnishing any assistance it can. Similar liaison is planned in the area of medical, theological and nursing school curriculums.

Dr. McCleave, an articulate, soft-spoken man who bears an astonishing resemblance to U. S. Astronaut John Glenn, was until a short time ago pastor of the First Presbyterian Church in Bozeman, Montana. In his varied career he has served as president of the College of Emporia, Emporia, Kan.; spent 44 months as a Navy chaplain, 27 of them overseas; and has pursued graduate study at the University of Geneva, Switzerland. His work in Geneva centered around the ecumenical church, a study of all branches of the Christian faith.

Eradication of Tuberculosis in Children*

EDITH M. LINCOLN, M.D.

A group of authorities in various fields of medicine met at Arden House, in Harriman, New York, in November, 1959, at the joint invitation of the United States Public Health Service and the National Tuberculosis Association. The conferees agreed that the elimination of tuberculosis as a public health problem was a practical goal, but recognized that this objective was not achievable for the country as a whole within the immediate future.

Therefore, recommendation was made for the establishment of immediate goals. Two such goals have been proposed—an active case rate by 1970 of not more than 10 per 100,000 population (the case rate in 1950 was 80), and control of infection in each community to the point where not more than one per cent of children at age 14 react to tuberculin. For children, the objective is for tuberculosis to become as uncommon as diphtheria or smallpox.

CHEMOTHERAPY THE FIRST TOOL

The most important tool in attaining this objective is chemotherapy. The public health reason for treating adults is to render them non-infectious. In children, the suppression of contagion is not of public health interest. Even where there is marked roentgenographic evidence of primary tuberculosis, a very small population of bacilli is usually found in cultures from gastric lavage of children. Furthermore, most children with primary tuberculosis are free from symptoms, including cough. Isolation may not, therefore, be necessary, and some health departments permit a child with primary pulmonary tuberculosis to attend school if he is free from symptoms.

When possible, however, a child with newly discovered primary pulmonary tuberculosis should be admitted to a hospital for one or two days so that cultures can be obtained from gastric lavage or from bronchial secretions. As the rate of tuberculosis falls, this procedure will become more important as a means of identifying bacilli resistant to the usual drugs. Prolonged hospitalization of children may be traumatic.

The main purpose of administering isoniazid to children with primary tuberculosis is to prevent complications.

Isoniazid is the only antimicrobial agent that prevents the development of complications. It is inexpensive and easily administered, and it should be given for at least one year in doses of 10 to 15 mg./Kg. of body weight.

The present trend in most parts of the world is to use combined therapy—that is, paraminosalicylic acid (PAS) with isoniazid. In uncomplicated primary tuberculosis, and for use in secondary prophylaxis to prevent complications, there seems to be no reason why isoniazid should not be given alone.

Recent converters, very young children with reactions to tuberculin, all children with roentgenographic evidence of manifest primary tuberculosis, and children with complications of primary tuberculosis or with chronic pulmonary tuberculosis should be given specific therapy.

TUBERCULIN TEST THE SECOND TOOL

The second and most important tool for eradicating tuberculosis in children is the tuberculin test. The emphasis should be on the *number* of tuberculin tests and, in children with previously negative tests, on the frequency of their repetition.

The tuberculin test is extremely valuable in diagnosis, but is not infallible. A Mantoux test will produce a skin reaction when tuberculous infection is present, provided the testing material is fresh, the test is properly administered and read, and the individual tested is not moribund, convalescent from measles, or receiving steroid therapy. However, some skin reactions to tuberculin may occur in those who have never been infected with tubercle bacilli. Sometimes such reactions can be recognized as atypical. A Mantoux which is red but not

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* Reprinted from ARCHIVES OF ENVIRONMENTAL HEALTH, October, 1961.

indurated is not called positive. Measurement of the Mantoux is important. Less than 5 mm. in diameter is definitely negative, and 10 mm. or more is positive. Between 5 and 10 mm., there is indecision and the test should be repeated with the same or a slightly larger dose. A test with 5 TU of PPD (the intermediate strength) should select 99 per cent of positive reactors.

Another tool for the eradication of tuberculosis is roentgenography. In children this tool should *never* be used for surveys, but every child with a positive tuberculin test should have a roentgenogram. If the child has obvious tuberculosis, sufficient films should be taken to guide the physician in the care of the patient.

Other approaches to the prevention of infection in children, aside from treatment and segregation of infectious adults, are attempts to alter the resistance of uninfected children by vaccination or the use of isoniazid for primary prophylaxis. There is no doubt that increased resistance to exogenous infection can be obtained by vaccination, the BCG strain of attenuated bovine bacilli being the agent commonly used. This is of value in countries with high incidences of tuberculosis, especially when given to newborn children. From a public health point of view, the artificial sensitivity produced by BCG interferes with the use of the tuberculin test in case finding. In areas of low morbidity, this is a strong argument against the use of BCG.

ROLE OF THE PEDIATRICIAN

The prevention of tuberculous infection by the administration of isoniazid has been proved in experimental animals. The data from the prophylaxis study of the Public Health Service, when published, should show whether or not this method of prevention can be applied to human beings.

There are many contributions which the pediatrician can make to a tuberculosis control program. First, the negativism about tuberculosis must be overcome. Obviously, with a decreasing rate of infection there will be less tuberculosis and fewer tuberculin conversions. But the pediatrician must continue aware of the possibility of tuberculosis. Where there are tuberculous adults, there are infected children. All children must be tested repeatedly in infancy and at least once a year *ad infinitum* or until conversion occurs. Prompt treatment with isoniazid should follow conversions.

Tuberculosis is preeminently a social disease. It increases where living conditions are poor and homes overcrowded. Any measures to relieve poverty and its attendant evils of inadequate nutrition and crowding will help in the basic control of the disease. The pediatrician must function not only as a physician but also as a public-minded citizen intent on securing for every child the right to be protected from a preventable communicable disease.

Iowa Medical Society Policy-Evaluation Committee Report On the National Blue Shield Senior Citizens Program

On January 15, 1962, the office of the Iowa Medical Society received information by telegram from the AMA Board of Trustees relative to the National Blue Shield Senior Citizens Program. The AMA Board recommended that constituent medical societies take such action as is necessary to cooperate with the proposed National Blue Shield Program. The AMA Board felt that it could make this recommendation on the basis of action taken at the Minneapolis Interim Meeting in 1958 which proposed that state medical societies cooperate with sponsored Blue Shield Plans in the creation of coverage designed to provide prepayment mechanisms for senior citizens at reduced premiums and fee schedules.

On January 17, 1962, the IMS Executive Council was apprised of the proposed National Blue Shield Plan and by its action, President Otto Glesne requested that the Policy-Evaluation Committee study the Program and present its recommendations to the Executive Council and/or the House of Delegates.

Not until late February or early March were details of the National Blue Shield Plan received locally. Immediately, work was begun by the staff and the committee chairman in preparation for a committee meeting. On March 21, the Committee held an all-day session in Des Moines.

The provisions of the National Plan and the Iowa Senior 65 Plan were compared and a number of questions or requests for interpretation were drawn up. On April 2 and 3, Dr. John MacGregor, a committee member, and a member of the IMS staff were in attendance at the Annual Meeting of the National Association of Blue Shield Plans in Colorado Springs. There the Iowa repre-

sentatives were able to obtain answers to some of the questions raised by the Committee.

On April 5, the Policy Evaluation Committee again met to hear the report of Dr. MacGregor.

Some of the important differences between the national program and the Iowa Senior 65 Plan are:

1. In Iowa all contracts are single, and each individual must be 65 or over. The National Plan will write single contracts for persons 65 and over, and family contracts in which the subscriber is 65 or over to include the spouse regardless of age and all dependent children under 19 years of age.

2. The Iowa service income limit is single—$2,000 and couple—$3,000. The National Plan is single—$2,500 and family—$4,000. In addition, Iowa has a net worth clause of single—$20,000 and couple—$30,000. The National Plan has no net worth clause, and this seems to be true of the majority of present senior citizen programs in other states.

3. The Iowa Plan provides medical care in hospitals up to 30 days. The National Plan provides this care for 70 days, with an additional 13 weeks —twice a week visits—for individuals who go directly from a hospital to a nursing home.

4. The Iowa Plan provides for consultation coverage, but such coverage is not provided in the national program.

5. In Iowa the waiting period for known conditions is 11 months, and in the national plan the waiting period is 6 months.

These are the more important differences in the two plans.

Similar coverage by both plans includes surgery, anesthesia, diagnostic x-ray, radiation therapy, laboratory by or under the supervision of a doctor, and concurrent and intensive medical care—all on a fee schedule.

Other points of interest are, briefly:

The Plan will be implemented at the local state level. The Iowa Relative Value Fee Index can be utilized at least for the first year and will be related to the National Professional Services Index compiled by National Blue Shield.

Claims will be judged first at the local level by the Blue Shield Claims Committee.

Eligibility for full service will be stamped on the subscriber's card, but it may be questioned and reconciled between the physician and the subscriber patient at the time of service and will be reviewed annually. The premium funds will be pooled on a national level, and all losses will be shared proportionately by the participating individual plans.

From its inception in 1958, the Iowa Senior 65 Plan has been well-received by the public and has proved to be fiscally sound. After a short period of experiment, the unit value for this program was increased. A total of 7,100 individual contracts are now in force, and it is estimated that 12,000 National Blue Shield contracts would be the maximum number that could be sold in Iowa.

Some problems do exist at the time of this report. The Iowa Senior 65 Blue Shield contract has been sold as a package with the Iowa Blue Cross Senior 65 policy. No open enrollment has been offered recently by Iowa Blue Cross because its policy has been proved fiscally unsound. To date no National Senior Citizen Blue Cross Plan is available to be sold as a package with the National Blue Shield program. However, efforts are being made by Blue Cross to formulate such a plan, and at any early date it may be announced. It is perhaps more difficult to develop a National Blue Cross Plan which can be fiscally sound and still set a premium level which will make it attractive.

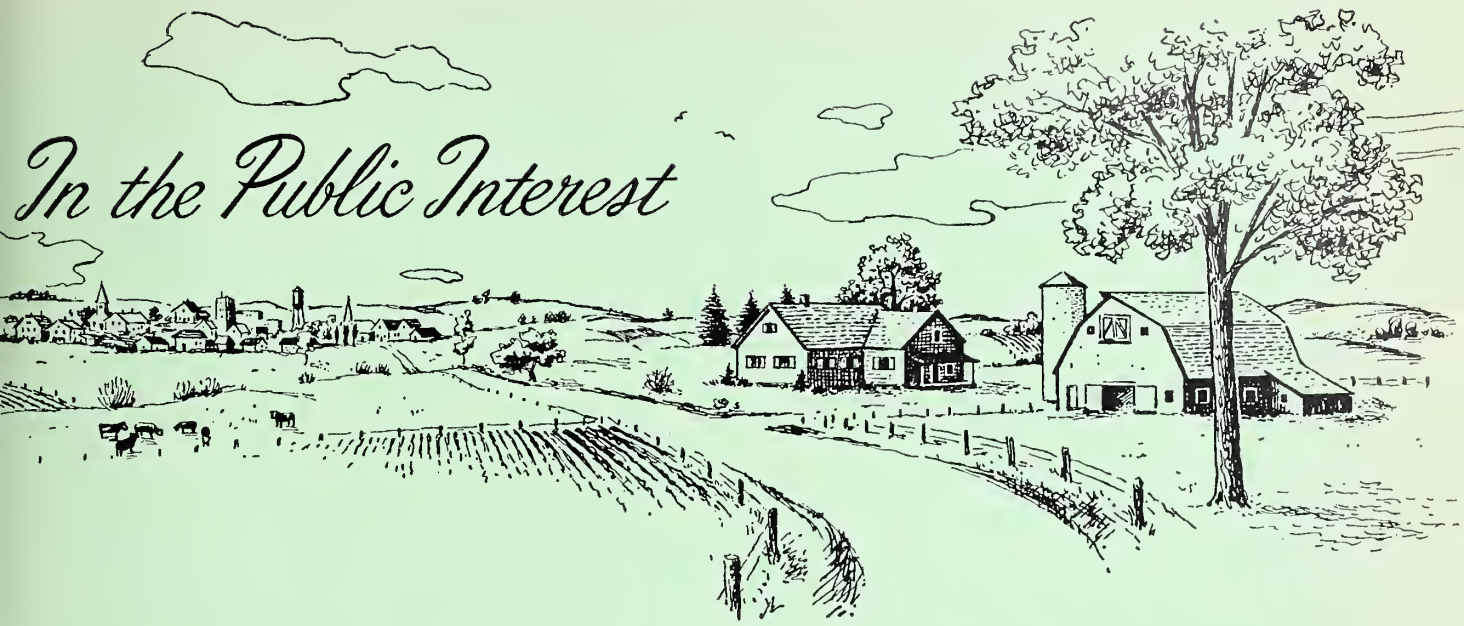
After a necessarily hurried but careful study of the National Blue Shield program, the Iowa Medical Society's Policy-Evaluation Committee voted to "approve the National Blue Shield Senior Citizen Plan and recommend that the Iowa Medical Society's House of Delegates endorse such a Plan." To date many local Blue Shield Plans and state medical societies have approved the national program. The neighboring states of Illinois, Nebraska and South Dakota are among that number.

A report embodying the foregoing facts will be presented to the House of Delegates.

TELEPHONE SERVICE

While you are attending the IMS Annual Meeting at the Veterans Auditorium in Des Moines, May 13-16, your office nurse can reach you by calling

Des Moines
215-243-0344



President of Student AMA Chapter at Iowa City Tells Why Medical Students Oppose King-Anderson Bill

Extension of the remarks of the Honorable Fred Schwengel of Iowa in the House of Representatives, Thursday, March 15, 1962, from the Congressional Record of Thursday, March 15, 1962.

Mr. Schwengel: "Mr. Speaker, in view of the big push which is going to be made for a program of medical care for the aged under Social Security, I feel that it is pertinent to call attention to the views of one of my constituents. This is a statement from a young doctor-to-be, Mr. William K. Hummer, president of the Iowa Chapter of the Student American Medical Association. Mr. Hummer has set forth a detailed analysis of the problem, and an appraisal of the current efforts to meet this problem. I think that his comments are significant and will be appreciated by all who are concerned about this issue."

* * *

March 1, 1962
Iowa City, Ia.

The Honorable Fred Schwengel
House Office Building
Washington, D. C.

Dear Representative Schwengel:

In my capacity, as president of the Iowa Chapter of the Student American Medical Association, I represent the great majority of the medical students in the College of Medicine.

We have been closely watching the action which is being taken on the King-Anderson bill (HR 4222). We feel that since we are the youngest segment of the medical profession, the outcome of this proposal concerns us more than any others in our field. We have attempted to study the background and nature of this bill in order that we might reach a logical and intelligent decision on its worth. We, as students, felt that this was the only fair way to arrive at a satisfactory conclusion. The following comments represent the culmination of these studies:

Basically, in considering any piece of legislation, two things must be considered. First, is there a need for this type of legislation? Second, what method will provide the most effective way of carrying out the needed legislation? We have concluded that there is no need for the specific type of program embodied in the King-Anderson bill. In addition, we feel that the method which has been proposed to finance it will prove to be inflationary and excessively costly.

There are approximately 17 million people in this country over the age of 65. The King-Anderson bill would cover approximately 13 million of this group. Many of these who could be covered could readily afford to pay for their own medical care. Moreover, many of those not covered could not afford to pay for such care. We do not believe that there ever could be a need for a law that would encompass so evident a degree of inequity.

One-half of the people over 65 already have

some form of health insurance. Recent statistics show that people over the age of 65 are buying health insurance at a rate four times greater than all other age groups combined. Thus, private insurance companies are proving themselves capable of providing adequate, low-cost health insurance to those over 65. These very figures defy the need for government intervention in the field of health insurance.

And finally, and probably most important, there is no need for a law to provide medical care to the aged since we already have such a program in effect today. The Kerr-Mills bill was passed in the last days of the Eisenhower administration. This provides medical care for the aged through a program of matching Federal and State funds and is administered locally. It seems unnecessary to have another law to provide medical care for the aged, when this law has not even had a chance to prove its effectiveness.

We feel it is evident that there is no need for the King-Anderson bill. And, upon closer study of the bill itself, it is clear that even if there were a need, King-Anderson would not be the best means to fulfill it.

Many Americans have been led to believe that Social Security is a "tried and tested" insurance program. This is a gross misrepresentation. In the Supreme Court decision in the case of Fleming versus Nestor (363 US, 609, 1960), the Court ruled that "Social Security must be viewed as a welfare instrument to which the legal concepts of insurance, property, vested right, annuities, etc., can only be applied at serious distortion of language."

The financial status of Social Security as it exists today is also open to question. In 1956 the benefits owed those on OASI was 486 billion dollars. The amount they would pay in was 194 billion dollars, and the trust fund was 23 billion dollars. Thus, there was a debt of 486 billion dollars minus (194 plus 23), or 269 billion dollars. In 1958, this debt was 289 billion dollars, and in 1960 the debt was 350 billion dollars. This debt, of course, has no real standing, such as the national debt, because there are no government bonds to pay it. But, if Social Security promises are to be met, then it is a debt just as real as the national debt. We submit that the proposed addition of medical care to the aged to a program already so financially overburdened would be unwise. It would result in inflation and tax increases in Social Security far greater than those currently proposed.

We are aware that there are people who are unable to finance at all, or in part, their medical care. It is our opinion that these are the people whom we must help. These are the proposals which we feel will provide adequate and equitable medical care to the people of this country who really need it.

First, the Kerr-Mills bill should be given a chance to prove itself. It is working out well in most states where it is now in effect. Funds which are provided by the Federal and State governments could be used to pay the premiums on health insurance policies from private companies which would cover this group.

Second, doctors who treat patients who are unable to pay could be given an income tax deduction for each such patient treated. Physicians throughout the country today willingly and happily treat thousands of patients for little or no consideration. If, in the future, some income tax deduction to doctors for these patients could be allowed, these doctors would receive at least a small recompense and the patients would have, in effect, "paid" for their care.

There comes a point in national affairs when certain issues turn into every individual's responsibility. So far as this question of government intervention in medicine is concerned, we feel that this point has been reached and passed. We have studied and made the preceding recommendations because we felt that we had to. We felt that the time had come when we were obliged to voice our opposition to existing proposals and to make specific recommendations of our own.

Sincerely yours,

William Kirby Hummer, *President*
Iowa Chapter Student American
Medical Association
933 River Street
Iowa City, Iowa

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

BASIC ANXIETY, by *Walter J. Garre*, M.D. (New York City, The Philosophical Library, Inc., 1962. $5.00).

EARLY DETECTION AND DIAGNOSIS OF CANCER, by *Walter E. O'Donnell*, M.D., *Emerson Day*, M.D., and *Louis Venet*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $12.00).

RENAL BIOPSY: CLINICAL AND PATHOLOGICAL SIGNIFICANCE—A CIBA FOUNDATION SYMPOSIUM, ed. by *G. E. W. Wolstenholme*, M.B., B.Ch., and *Margaret P. Cameron*, M.A. (Boston, Little, Brown and Company, 1962. $10.50).

INTERNAL MEDICINE IN WORLD WAR II, VOLUME I—ACTIVITIES OF MEDICAL CONSULTANTS, ed. by *Col. John B. Coates, Jr.*, MC, and *W. Paul Havens, Jr.*, M.D. (Washington, Office of the Surgeon General, Department of the Army, 1961.)

AN ATLAS OF HEAD AND NECK SURGERY, by *John M. Lore, Jr.*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $25.00).

CLASSICS OF CARDIOLOGY, VOLS. I AND II, ed. by *Frederick A. Willius*, M.D., and *Thomas E. Keys*, M.A. (New York City, Dover Publications, Inc., 1962. $2.00 each).

A TEXTBOOK OF OBSTETRICS, by *Duncan E. Reid*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $18.50).

CURRENT DIAGNOSIS AND TREATMENT, 1962, by *Henry Brainerd*, M.D., *Sheldon Margen*, M.D., and *Milton J. Chatton*, M.D. (Los Altos, California, Lange Medical Publications, 1962. $8.50).

BOOK REVIEWS

THALASSEMIA: A SURVEY OF SOME ASPECTS, by *Robin M. Bannerman*, M.A., D.M., M.R.C.P. (New York City, Grune & Stratton, Inc., 1961. $6.50).

This monograph, another of the "Modern Medical Monographs" edited by Irving S. Wright, M.D., was awarded first prize in the third Modern Medical Monographs competition. It constitutes an excellent survey of a number of the aspects of the thalassemias. The author discusses the genetics and incidence of this interesting hemoglobinopathy altogether adequately, and his presentation of the clinical features is complete. He also discusses the various interactions and variants of this interesting anemia, and then goes on to take up hemoglobin and iron metabolism and its disorders, including a number of the hypochromic anemias as well as pernicious anemia and lead poisoning. His final chapter deals with theories regarding the pathogenesis of the condition, and contains a few suggestions regarding the objectives for future investigations.

The book will prove very interesting to those who are concerned with anemic conditions, and for others it should serve primarily as a reference source. The photomicrographs and the various diagrams and charts are quite adequate, and help to clarify the discussion. It is obvious that the author has made a thorough study of the pertinent literature, for he cites 375 references.—*M. E. Alberts*, M.D.

HALOTHANE [FLUOTHANE], by *C. Ronald Stephen*, M.D., and *David M. Little, Jr.*, M.D. (Baltimore, Williams & Wilkins Co., 1961. $6.00).

Fluothane, one of the newer volatile anesthetic agents, has been in clinical use for five years. During that period, several million fluothane anesthetics have been given. This monograph of 12 chapters and 142 pages reviews its chemistry, physics, physiologic effects and clinical use. There is a brief chapter by Dr. J. P. Payne, of London, on the current British usage of fluothane, which differs in many respects from American practice.

The book is concise, well written and attractively printed and bound. It can be highly recommended.—*K. Garth Huston*, M.D.

CARCINOMA OF THE CERVIX, by *John B. Graham*, M.D., *Luciano S. J. Sotto*, M.D. and *Frank P. Paloucek*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $14.00).

This book meticulously and exhaustively covers the subject of carcinoma of the cervix. The first portion very completely outlines the overall problem of malignant disease of the cervix, including frequency, etiology and pathology, as well as the accepted methods of diagnosis.

A great deal of stress is placed upon carcinoma *in situ*—its recognition and management—and properly so. The senior author was trained with the Meigs group at Vincent Memorial, the gynecologic service of Massachusetts General Hospital where much of the pioneer work was done in the recognition of that clinical entity.

An excellent résumé of the prognosis of this disease, based on clinical staging as well as on histologic appearance, is presented. The chapter on cytologic prognosis describes very well the phenomena of radiation response (RR) and sensitization response (SR) originally brought out by the Massachusetts General group of gynecologists.

Management and therapy are very thoroughly covered from the standpoints of surgery, radiation therapy and a combination of the two. It is to the authors' credit that despite their coming from an institu-

tion that has done much to popularize surgical therapy for this disease, they haven't overstressed that mode of treatment. One is left with the impression that the authors still believe, by and large, that therapy for invasive carcinoma of the cervix is best carried out in a relatively large medical center that is completely and adequately equipped. Certainly anyone who has seen much of this disease must agree with them on that point.

This is a textbook which the medical students and the generalist who sees only an occasional case of carcinoma of the cervix will have little use for. However, in spite of the fact that some space has been wasted on fundamental trivia, the radiologist or gynecologist who is handling any volume of such cases will find it a most useful reference book.—*C. W. Seibert,* M.D.

HYPERTENSION—RECENT ADVANCES, THE SECOND HAHNEMANN SYMPOSIUM ON HYPERTENSIVE DISEASE, ed. by *Albert N. Brest,* M.D., and *John H. Moyer,* M.D. (Philadelphia, Lea & Febiger, 1961. $12.00).

This book is divided into seven major sections, as follows: (1) natural history of hypertension; (2) etiological mechanisms; (3) atherosclerosis and hypertension; (4) pharmacology of hypertension; (5) catecholamine metabolism; (6) drugs which affect catecholamine metabolism; and (7) therapeutic considerations. All the presently known facts and theories regarding the natural history, etiology and pharmacology of hypertension are reviewed. Numerous charts and illustrations are helpful. There are 117 contributors to this text.

This is an extremely detailed book, and its emphasis is on the newer treatments. The chapters on the role of catecholamine inhibitors are particularly interesting. Fourteen panel discussions summarize and emphasize the pertinent points. The book is recommended to all physicians.—*Herbert Shulman,* M.D.

MEDICAL GENETICS 1958-1960, by *Victor A. McKusick,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $14.50).

This volume is an unusually fine reference on genetics, offering a quick survey of both general and specific topics. A cumulative index and paragraph numbers make it easy to use. The bibliography is complete. Not only are the new books summarized, but the sections are arranged to include history, general genetics, human genetics, methods, cytogenetics in man, biochemical genetics and congenital malformations. Should one want to review publications relating to one particular system such as the circulatory or the hematopoietic, abstracts of the presentations that appeared during these three years are readily available to him.

In the first paragraph of his preface, Dr. McKusick explains how he happened to start assembling materials for his book: "In 1958 my colleagues and I undertook a review of the medical genetics literature for that calendar year, and have continued the reviews since then. The reviews are based mainly on the activities of a successful 'journal club' in which the several contributors participated. During the period of the review, the participants were medical students, house officers, research fellows, or staff members, most of them attached to the Division of Medical Genetics, Department of Medicine, The Johns Hopkins University School of Medicine. The 'journal club' and the reviews emanating from it have represented a highly useful pedagogical device, and it is hoped the reviews will be equally useful to others. As indicated by the title, the reviews for 1958, 1959, and 1960, previously published separately in the JOURNAL OF CHRONIC DISEASES, are combined in this book. It is hoped that the accumulation of annual reviews will prove a partial substitute for a full textbook of medical genetics (which many feel is badly needed, but few have the time to undertake) and will supplement the available textbooks in the fields of general genetics and human genetics."

Attempts of many sorts are being made to provide the profession with time-saving ways of keeping informed on the progress that is being made in research and practice. This publication is a highly successful result of that sort of effort.—*Charles L. Burr,* M.D.

GOOD-BYE, DOCTOR ROCH, by *Andre Soubiran,* M.D. (New York City, Doubleday & Company, Inc., 1961. $4.50).

This novel has a fictitious public mental hospital in France as its setting, it concerns the struggles of its medical director to develop a modern and humane treatment program, and it is told from the standpoint of a perceptive, intelligent and healthy patient in the hospital.

Except for minor and unimportant details, the story could easily have concerned developments of recent years in many public mental hospitals of the United States.

The enlightened, determined and humane efforts of Dr. Roch, the medical director, to improve the treatment and living conditions, despite incompetent and defeatist colleagues and attendants, bureaucratic interference, public prejudice against the mentally ill, and lack of funds, parallel the history of similar efforts in this country.

The picture of overcrowding, stupidity, cruelty and understaffing, and of the work of the exceptional staff member and attendant in bettering those conditions, parallels the original state of affairs and the development of progressive measures of care and treatment in public mental hospitals here in recent years.

The reader's interest is well sustained by the story of the redemptive power on the patient of his wife's love, faith and support. The portrait of old Ferment, the wise, gentle and devoted head attendant, is one that will be familiar to anyone who has ever worked in a public mental hospital.

Dr. Soubiran has succeeded very well in a task that needed doing. I am confident that professionals and all others interested in the problems of mental illness will find this book most interesting and informative. —*Karl A. Catlin, M.D.*

Iowa Association of Medical Assistants

Credit and Collections

Credit is a convenience to which many people are entitled. They are people with enough of either income or willpower so that they don't live beyond their means and are always prompt in paying what they owe. But for those who are either financially insecure or weak-willed, credit is a pathway to trouble.

When a patient first visits your office and fills out a registration or information card, it is time for you to discuss methods of payment with him, so that you and he can arrive at a definite understanding. He will let you know whether he expects to pay for each visit as he is seen, or whether he prefers to pay for services at the end of each month and has built up a record elsewhere that justifies his being granted that privilege. He will also tell you whether he has medical or surgical insurance that will help him when large expenditures are called for.

The only way in which you can help the patient pay his bill is to make it easy for him to pay, and we don't mean by volunteering to extend credit. Many patients prefer to pay as they are seen, and this is most frequently true of those who are seen only at long intervals. You can give a charge slip for the call to the patient, listing the charges for services and the total due for that visit, or you can tell him the charge and give him an opportunity to pay, instead of just telling him it was nice to see him or that you hope he will feel better tomorrow.

Be sure to send statements promptly to the patients whom you have agreed to bill at the end of the month. If you are late in sending the statement, the patient is likely to lay it aside, planning to pay it the next time he has occasion to write a batch of checks, and before that time arrives another month may have passed or he may have forgotten or mislaid your statement. The majority of payments on account are made within a week after the end of a month or after the end of the patient's pay period. It therefore is important that bills be sent by the first of each month, and if there is no response, a second statement should be sent at the end of the next month to serve as a reminder.

When the patient has ignored three monthly statements, you should send a personal letter to him. It should be short and simple, and you rather than your physician employer should sign it. In it, you can ask whether there is any question about the account and whether there is a reason for his not paying it.

If he still makes no response, send him a second letter the following month, saying that you had expected to hear from him and asking whether some convenient arrangement can be made for his paying the overdue account.

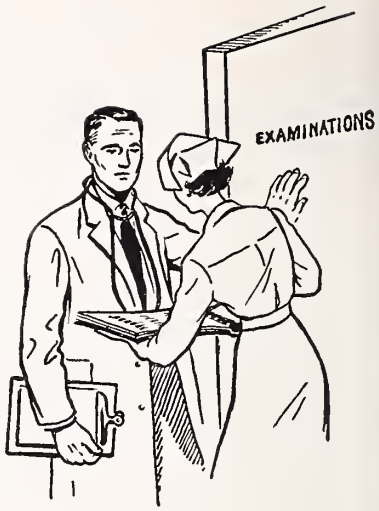
If he replies that he has had some unexpected expenses that prevented his paying, but will take care of the doctor's bill within the next two weeks, make a note of that promise on his ledger card, and if the money hasn't arrived at the end of the designated period, send him a reminder saying that you expect to hear from him shortly. Or if, in his letter, he has said he will be unable to make a payment for two or three months, note that statement on his ledger card, and at the end of that time ask him whether conditions have improved and whether arrangements can now be made for payment.

If six months have passed with no response to statements or personal letters, then you should send a final note stating that because you haven't heard from him his account will be turned over to a professional collector within 10 days. Then if he still fails to respond, turn the job over to a collection agency. You have made every effort to get the patient's cooperation.

A neat, courteous letter can be a very effective collection technic. It should always be addressed to the person responsible for the account (with his name spelled correctly), and should always state the amount due. Make it personal and friendly, and the response, in many cases, will be friendly and prompt.

—*Helen G. Hughes*

THE DOCTOR'S BUSINESS



Your Health and Accident Insurance Program

HOWARD D. BAKER
Waterloo

We are often confronted with the question: "How much health and accident insurance should I carry?"

In considering this matter, it is important for us to remember that health and accident insurance is *disaster income,* and that it is neither necessary nor prudent for a man to carry insurance equal to his earned income. On the contrary, it is necessary only that he have adequate income during his period of disability to provide the basic necessities for himself and his family and to meet any fixed obligations to which he is committed. It is much more important for him to be sure of receiving indemnity for long enough periods, than to get an over-generous amount for only a short time. Health and accident insurance should be based on an accurate assessment of need, and should not be carried in excess of that need or in the absence of need.

After considerable study of the problem, we have adopted the following basic principles regarding health and accident programs:

1. Amount of Coverage. Monthly coverage should consist of a minimum of $400 per month plus $50 per month for each dependent, including your wife, and plus an amount equal to the total of your fixed monthly financial commitments. For example, if you have a wife, three children and mortgage payments of $150 per month, you should carry at least $750 monthly protection. In making this computation, you should allow for whatever income you have from sources other than your work as a physician.

2. Types of Contracts. It is our recommendation that at least 50 per cent of your coverage consist of high quality, permanent, individual policies with reputable companies. Needless to say, these should be non-cancellable and guaranteed renewable to age 65. Thus the permanence of at least one-half of your program will be guaranteed.

After this portion has been secured, the remaining 50 per cent should be made up of high grade group contracts. These are semi-permanent, depending upon the continuation of the group and of your membership in that group. As a supplement to permanent insurance, these contracts offer excellent coverage at very reasonable cost. Most state medical societies and specialty groups offer these quality group contracts today.

3. Indemnity Periods. Since we believe in long-term catastrophic coverage, as opposed to short-term protection, and since most doctors have cash and accounts to carry them for at least 30 to 90 days, we recommend the following indemnity and elimination periods:

a. Sickness. Indemnity should start the thirty-first or sixty-first day, and should be payable for a maximum period of seven to 10 years.

b. Accident. Indemnity should start with the first day of disability, and should be payable for life. Since most good policies pay from the first day, no elimination period is recommended.

Health and accident insurance is a highly speculative field, and there are some bad as well as many good contracts being written today. It should be borne in mind that, as with most other goods and services, you get what you pay for. On the day you become disabled it will be too late to discover that the apparently "cheap" policy that you purchased is virtually worthless.

With the aid of your insurance advisor, you should carefully evaluate your needs and the provisions of each contract before you buy.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

Iowa Chapter of the American Academy of General Practice

Spring Postgraduate Conference New Inn, Okoboji, Iowa June 18-21, 1962

Once again the doctors of Iowa are invited to attend the Iowa Chapter's Spring Postgraduate Conference at the New Inn, on Lake Okoboji. The lake, reputed to be the second bluest in the world, is sure to dispel whatever traces of a different sort of blueness may have remained in the minds and spirits of Academy members from the long, dreary winter.

A sprightly course of lectures has again been scheduled, and if this year is like last, physicians will be enthusiastic about them, holding speakers well past the lunch hour as they ply them with questions.

Mornings are to be used for study, but the afternoons and evenings will be spent in fun and frolic. Bring your whole family to have a good time. You can study in the mornings while your wife and children sleep late. The many forms of entertainment at Okoboji range from golfing to boating, dancing, amusement-park rides, etc.

Write to the New Inn for your reservations.

Following is the scientific program:

Monday Morning, June 18

"Treatment of Cervical Lesions in Pregnancy"—Wm. C. Keettel, M.D., Iowa City

"Influence of Host-Resistance Factors on Infectious Diseases and Antibiotic Therapy"—R. S. Griffith, M.D., Indianapolis

"Office Gynecology and Papanicolaou Smears"—Kenneth R. Cross, M.D., Iowa City

"The Medical Therapy of Behavior Problems of Childhood"—John C. MacQueen, M.D., Iowa City

"Urinary Infections"—Wm. J. Martin, M.D., Rochester, Minnesota

Tuesday Morning, June 19

"Hospital Procedures: Necessity for Controls and Accuracy in the Laboratory"—Dr. Cross

"The Treatment and Prognosis of the Seizure Patient"—Dr. MacQueen

"Prophylaxis and Treatment of Staphylococcal Infections in the Hospital and Home"—Dr. Griffith

"Prevention and Management of Abortion"—Dr. Keettel

"Bacteremic Shock"—Dr. Martin

Wednesday Morning, June 20

"Psychosomatic Aspects of Dermatology"—Francis W. Lynch, M.D., Minneapolis

"The Diagnosis and Treatment of Certain Anorectal Lesions"—Raymond J. Jackman, M.D., Rochester, Minnesota

"Fungus Infections and Pediatric Dermatology"—Dr. Lynch

"Ulcers of the Anus and Rectum"—Dr. Jackman

"Philosophical Aspects of Iowa Medicine"—Dwight G. Sattler, M.D., Kalona

Thursday Morning, June 21

Heart Day

Sponsored by the Northwestern Iowa Heart Council and Eli Lilly & Company's Road Show Program

"Misdiagnosis of Rheumatic Fever"—Francis Fitzmaurice, M.D., Creighton University School of Medicine, Omaha

"Coronary Angiocardiography"—Richard Booth, M.D., Creighton University School of Medicine, Omaha

"Clinical Diagnosis of Congenital Heart Disease"—Dr. Fitzmaurice

"Laboratory Diagnosis of Heart Disease"—Dr. Booth

Symposium at Ft. Madison

There will be an afternoon and evening symposium at the Golf and Country Club in Ft. Madison on Wednesday, May 23, sponsored by the Lee County Medical Society and the Iowa Chapter of the American Academy of General Practice.

Keep the date in mind. The program will be distributed by direct mail early in May.

Urge your patients to come,
and come, yourself, to the
AMA REGIONAL CONFERENCE ON
RURAL HEALTH
Savery Hotel, Des Moines
May 18-19, 1962

(The complete program appeared on the "green sheet" in the April IMS JOURNAL)

STATE DEPARTMENT OF HEALTH

Edward G. Zimmer
COMMISSIONER

Morbidity Report for Month of March, 1962

Disease	1962 Mar.	1962 Feb.	1961 Mar.	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	500	395	236	Iowa, Jefferson, Johnson, Polk
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	2,960	620	654	Appanoose, Dubuque, Polk, Scott
Whooping cough	18	4	9	Black Hawk, Dubuque, Lyon
Brucellosis	6	9	15	Scott
Chickenpox	315	303	928	Dubuque, Polk, Story
Meningococcic meningitis	2	1	1	Mahaska, Polk
Mumps	304	259	788	Boone, Crawford, Polk
Poliomyelitis	1	1	0	Polk
Infectious hepatitis	115	178	219	Boone, Floyd, Polk, Scott, Woodbury
Rabies in animals	53	44	23	Dickinson, Jasper, Keokuk, Marshall
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	31	29	32	For the state
Syphilis	101	52	89	For the state
Gonorrhea	146	70	86	For the state
Histoplasmosis	1	1	4	Webster
Food intoxication	4	0	0	Story
Meningitis (type unspecified)	1	2	3	Dubuque
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	0	1	
Salmonellosis	3	1	1	Dubuque, Lyon, Wapello
Tetanus	0	0	0	
Chancroid	0	0	0	
Encephalitis (type unspecified)	0	0	0	
H. influenzal meningitis	1	1	0	Polk
Amebiasis	3	2	0	Boone
Shigellosis	1	0	4	Wapello
Influenza	508	14,576	6	Howard

Recommendations for Poliomyelitis Immunizations Iowa—1962

A. The Sabin Oral Monovalent Vaccine. Types I and II of the Sabin oral monovalent vaccine were licensed in the fall of 1961. Type III was licensed late in March of this year. Now that all three types have actually been licensed, plans for their use have become more practical, even though we have no assurance of the amounts of the different types of the vaccine that may be available.

The Sabin vaccine lends itself to group use. It is best used and most effective on a community basis. The types need not be given in numerical order. Because of the high frequency of outbreaks of intestinal virus illnesses which usually begin in July and continue through October, the Sabin oral vaccine should not be given during those months. The so-called wild viruses prevent the attenuated Sabin viruses from establishing themselves in the intestinal tract and producing antibodies. Thus, any oral vaccine program should be completed by the end of June. If, because of the necessary interval between doses, only two types can be given before July 1, and if type III is available, it would be preferable to start with type I and follow with type III as the second of the series, leaving type II to be given after October. (During 1961, 57.1 per cent of virus isolations nationally were type I; 1.4 per cent type II; and 41.5 per cent type III.)

Remember, the first booster for the Sabin oral monovalent vaccine is a polyvalent booster to follow a year after completion of the series of three feedings.

B. The Salk Poliomyelitis Vaccination Schedule for 1962.

The Basic Series. All persons under 50 years of age should be immunized. The basic series consists of three injections: the initial injection, the second injection four to six weeks after the first, and the third injection usually given seven months after the second.

Babies. Research during the past two years has shown that the vaccine may be started in babies as young as two months of age. For babies whose immunizations are started before six months of age, the basic series should consist of the initial

injection, a second injection a month later, a third injection about a month after the second, and a fourth injection seven to 12 months after the third.

Booster Injections. It is definitely established that a booster injection of the vaccine should be given to all persons a year after the completion of their basic series of immunizations.

Subsequent Boosters. Probably the best interval is two years after the first booster. However, for the present, it is advisable to give special boosters to persons in areas where poliomyelitis is in high incidence, to pregnant women, to children about to enter school and to persons planning to travel in areas where sanitation is known to be poor.

The emphasis on special needs for poliomyelitis vaccine continues to be directed toward three groups: children under five, breadwinners between 25 and 50, and "islands" of population in which the percentage of immunized individuals is much lower than it is for the general public. Special attention is directed toward children under five and breadwinners because those two groups, nationally, are below 50 per cent immunized.

IOWA—1961
POLIOMYELITIS CASES

County	Age	Sex	Date of Onset	Number of Injections of Vaccine	Date of Last Injection
			Paralytic—10 Cases		
Audubon	24	F	9-20-61	4	6-15-59
Clinton	24	M	8-23-61	3	?*
Clinton	7	F	8-27-61	0	
Delaware	4	F	7-16-61	0	
Des Moines	3	M	7-26-61	2	1958
Mahaska	19	M	7-29-61	3	1958
Monroe	23	M	8- 9-61	0	
Story	3	M	11-29-61	0	
Wapello	11	M	8- 6-61	3	3-4-57
Wapello**	7	M	8- 2-61	0	
			Non Paralytic—8 Cases		
Black Hawk	21	F	8-14-61	4	1959
Black Hawk	6	M	8-11-61	4	7-24-59
Buena Vista	5	M	8-20-61	5	5-26-61
Buena Vista	49	F	3-20-61	0	
Des Moines	28	F	8- 3-61	0	
Kossuth	11	M	8-19-61	3	5-11-61
Monona	14	F	11-10-61	2	10-55
Scott	23	F	9-14-61	0	

*Date of injections not established
**Death 10-16-61

Iowa's 1961 record, like its record for 1960, shows that the chances of developing paralytic poliomyelitis for persons who have had the basic series of Salk vaccine, with boosters at the recommended intervals, are very small.

Although Coxsackie viruses of several types were isolated in various Iowa communities, no polio viruses were found in 1961. No specimens for virus studies were obtained from any of the 18 cases diagnosed as poliomyelitis. There were several reasons why none were secured. The 18 cases were scattered state-wide and over a period from March through November. Furthermore, the case reports usually reach the State Department of Health after the period during which it is possible to obtain specimens. Without a state virus laboratory, we are limited to a depot system for specimen collection. These depots can be set up only in larger cities with laboratories that can prepare and store specimens for shipment to the USPHS Communicable Disease Center Laboratories at Kansas City. On that basis, although specimens were sent from the areas of Des Moines, Fort Dodge, Spencer, Waterloo, Burlington and Davenport, no polioviruses were obtained.

Perhaps when Iowa has its own virus laboratory, more specimens can be examined from all areas of the state.

1961
UNITED STATES POLIOMYELITIS CASES BY PARALYTIC STATUS, AGE GROUP AND VACCINATION HISTORY REPORTED ON POLIOMYELITIS SURVEILLANCE UNIT FORMS
(Through February 17, 1962)

Age Group	Doses of Vaccine 0	1	2	3	4+	Unk.	Total	Per Cent
0-4	202	33	33	38	26	14	346	36.9
5-9	67	15	21	50	42	5	200	21.3
10-14	30	6	11	25	29	7	108	11.5
15-19	18	1	7	20	9	0	55	5.9
20-29	74	6	10	16	8	1	115	12.3
30-39	57	6	6	2	4	5	80	8.5
40+	28	1	0	1	1	2	33	3.5
Total	476	68	88	152	119	34	937	100.0
Per Cent	52.7	7.5	9.7	16.8	13.2	—	100.0	

1961*
POLIOVIRUS ISOLATIONS
REPORTED BY U. S. PUBLIC HEALTH SERVICE
(All States)

	Type I	Type II	Type III	Total
Total	248	6	180	434
Per Cent	57.1	1.4	41.5	100.0

*From 1961 cases reported to Poliomyelitis Surveillance Unit through February 17, 1962. (This information taken from Communicable Disease Center Poliomyelitis Surveillance Report No. 251, February 23, 1962.)

Woman's Auxiliary News

President's Annual Report

The Woman's Auxiliary to the Iowa Medical Society has been organized 33 years, and has accomplished a great deal. It is difficult to evaluate the visible progress that has taken place in just one short year, because our inheritance from the yesterdays had brought us high on the ladder of achievement. I have enjoyed the privilege and challenge of serving as president. Much of the satisfaction has resulted from the enthusiastic cooperation of the officers in executing our goals. We have endeavored to assist our medical societies, particularly in the field of legislation; we have found that working together stimulates friendly relations among physicians' families; and we have coordinated and helped with the activities of our constituent Auxiliaries.

The theme of our national president, Mrs. Harlan English, "Speak Your Beliefs in Deeds" surely has been carried out in the reports of the county presidents and state committees that follow:

Annual Meeting: Planned the program and many details. Members from 16 Auxiliaries in Central Area provided table decorations, took charge of registration, and served as hostesses in hospitality room. Board of Directors invited as brunch guests.

A.M.E.F.: Stationery and playing cards sold. Memorials to physicians who passed away this year and individual county contributions reached a total of approximately $500.00.

BULLETIN Circulation: Subscriptions number 51. Mahaska Auxiliary can boast "Every Member a Subscriber."

By-Laws: Complete revision of the By-Laws was accomplished. I take great pride in this achievement.

Civil Defense: Several Auxiliaries presented programs on shelters.

Community Service: Physicians' wives are actively engaged in numerous services in their communities. Auxiliary-sponsored projects are: *(a) Six Handicapped Craft Sales* (Waterloo, Fort Dodge, Spencer, Sioux City, Des Moines, Dubuque). Total sales—$3,974.08. *(b) Volunteer Health Service Award:* County contests, each of which selected a lay woman who has made the greatest local contribution in the health field. *(c) A.A.P.S. Essay Contest:* High School students eligible. Topic—"The Advantage of the American Free Enterprise System Over Communism" or "Advantage of Private Medical Care." Judges select winners. Iowa Medical Society presents check for $100.00 to top winner, and checks for lesser amounts to second and third. *(d) Eye Screening:* Several Auxiliaries aid other organizations in preschool eye examinations. *(e) Homemaker Service:* Polk County Auxiliary and Medical Society contributed $2,000.00 toward the development of this service, the first homemaker service in Iowa.

Finance: Prepared a budget for the year's expenditures. Board members are informed of their individual allowances.

Health Careers: 51 clubs in high schools. One Health Career Day held in Des Moines in October. Excellent opportunity for recruitment of young persons.

Health Education Loan Fund: Total Fund $13,250.00. Auxiliaries and members-at-large contribute 50c per member; Annual benefit dance at time of annual meeting; Memorials to this fund at death of a member. Seven student nurses received loans this year amounting to $3,779.30. The Dubuque Auxiliary gave a $500 scholarship to a student of its choosing (very outstanding project for one Auxiliary). We urge all county Auxiliaries to participate in the state project. We believe a loan to a worthy student interested in a health profession is better than a scholarship. Fifty students have benefited from H.E.L.F.

Historian: Compiles records of importance to the State Auxiliary.

Legislation: Committee has worked constantly. Whether we are a member of a small or large Auxiliary, a member-at-large or merely are eligible to be one, we have received instruction and literature directing us to make our individual effort toward defeating King-Anderson Bill, H.R. 4222. The Ronald Reagan record was played numerous times. Many letters and resolutions were sent to President Kennedy and Congressmen opposing the passage of this bill.

Membership: Organized Auxiliaries number 41. Dickinson, Marion and Scott Auxiliaries organized during the past year. Membership, as of April 20, 1962, totalled 1,203, representing a gain of 42 members over 1961.

Mental Health: Increase of interest in this subject. Special services given to patients in hospital wards. Iowa Mental Health Authority furnished 1,000 "Milestones to Marriage" packets.

Program and Year Book: The second vice-president, with aid of administrative secretary, assembled information for Year Book. Each member received a copy by September 15. National program material was made available upon request.

Publications: AUXILIARY NEWS editor encourages Auxiliary activity and collects pertinent information from the officers.

Rural Health: Slowly developing. We urge each county Auxiliary to send representatives to the AMA Regional Conference on Rural Health May 18-19, in Des Moines. Specific projects suggested in "green sheet" distributed with April issue of AUXILIARY NEWS.

Safety: Prepared monthly "Tips for Safety" for AUXILIARY NEWS.

Special Committees: Drugs were sent to Bangkok, Thailand, for leprosy relief. Medical books were sent to the Christian Medical Society, Oak Park, Ill.

We are proud to cooperate with WA-SAMA at the University of Iowa. The State Auxiliary contributed $125.00 toward a delegate's expenses to the WA-SAMA Fifth Annual Convention in Washington, D. C. We urge the WA-SAMA advisor to become a member of Auxiliary.

Our Auxiliary enjoys an excellent relationship with the Iowa Medical Society. We were privileged to have both Dr. Otto Glesne, president, and Dr. George Scanlon, chairman of the Advisory Committee, as speakers at meetings of the Board of Directors. I was invited to speak to the Senior Medical Students' Seminar on the topic "Medicine's Counterpart—The Woman's Auxiliary." I reported to the Executive Council about Auxiliary representation at various health meetings.

The Iowa Medical Society assumes great financial responsibility for Auxiliary activities: (1) Cost of printing AUXILIARY NEWS in the JOURNAL each month, and of 1,200 reprints for distribution to Auxiliary members; (2) Stationery, and postage for all mailings from the office to membership; (3) Mileage for members attending Board meetings; and (4) The salary and expenses of the administrative secretary, Mrs. Hazel Lammey. We appreciate her genuine interest and willingness to serve our Auxiliary.

District meetings scheduled in one area of the state each year deserve special comment. Each councilor plans one meeting in her area during her term of office. Members from every county participate. Districts II, V, X, and XI in the Central Area, held meetings this year.

This report would not be complete without mentioning my many wonderful experiences: Serving as presidential delegate to the National Auxiliary Convention in New York, June, 1961, and attending the National Conference for Presidents and Presidents-elect in Chicago; Representing our Auxiliary at the Iowa Pharmaceutical Auxiliary Convention; Iowa Dental Auxiliary Convention; Iowa Veterinary Association Auxiliary meeting; meeting of the Iowa Farm Bureau Women; and meeting of the Iowa Teachers Association.

This briefly summarizes Auxiliary activities. We hope our endeavors have brought us to another rung on the ladder of achievement.

—MRS. B. F. KILGORE

IMS Woman's Auxiliary Welcomes Large New Group

An immutable law of physics states, "For every action, there is a reaction." Under the stimulus and threat that government bureaucracies may stifle American medicine, the Woman's Auxiliary to the Scott County Medical Society, has been organized. After spirited discussions, the Scott County doctors' wives, under the aegis of designated officials from the Scott County Medical Society, accomplished the all-important task, aided by a task force from the Woman's Auxiliary to the Iowa Medical Society (Mrs. A. C. Richmond, president-elect; Mrs. J. G. McMillan, district councilor; and Mrs. R. F. Nielsen, past state president). The group held its first official meeting at the Outing Club, in Davenport, on March 8, 1962.

Nominating and Bylaws Committees were formed, to report at the final organizational meeting, March 15, 1962. At that second meeting, Mrs. James (Lenor) Bishop was elected president; Mrs. Willard (Winnie) Pheteplace, vice-president; and Mrs. R. V. (Jean) Daut, recording secretary. Also elected for 1962 were Mrs. Robert (Helen) Byrum, corresponding secretary; Mrs. Edwin (Mary) Motto, treasurer; and Mrs. Robert (Betty Jean) McConnell, historian.

At this meeting Mrs. Nielsen officially welcomed the neophyte organization into the larger group of dedicated workers, the Iowa Medical Society Auxiliary. She pointed out the opportunities it affords women to become educated in the field of politics, to warn other citizens of the State of Iowa about the dangers of "creeping socialism," and to improve medical public relations on a person-to-person basis in every community.

Over 70 women were signed as charter members of the organization. Davenport has the distinction of having been the site of the first hospital in the State of Iowa. It can never claim to have had the first Woman's Auxiliary, but with diligence and effort from the doctors' wives, it perhaps will eventually have the best.

Our chapeaus are off to our newest organization—Welcome!

COUNTY AUXILIARIES

BUCHANAN

The Buchanan County Woman's Auxiliary entertained the county's doctors at a "Doctors' Day" luncheon at the Hotel Pinicon, in Independence, on April 6. Mrs. J. F. Loeck, Auxiliary president, in welcoming the doctors and their wives, read two poetic tributes to the medical profession. Dr. Nelson Hersey, president of the Buchanan County Medical Society, spoke on the problems and challenges, both medical and political, that face doctors

today. A choral group from Jefferson High School sang several selections.

Mrs. Roger White was in charge of table decorations for the luncheon, and the other committee members were Mrs. Richard Free, Mrs. J. H. Hege, Mrs. Donald Ingham, Mrs. Selig Korson and Mrs. Charles White.

LEE (NORTH)

The annual "Doctor's Day" was observed and enjoyed the morning of March 30 by the doctors of the Fort Madison area. Coffee and delicious home made sweet rolls were served in the Sacred Heart Hospital dining room by the members of the North Lee County Woman's Medical Auxiliary. The traditional red carnation boutonnieres were pinned upon suit coat lapels, scrub gowns, lab coats and other miscellaneous apparel, accompanied by a hearty congratulatory handshake.

To carry out the "Doctor's Day" theme, the table was centered with a lovely arrangement of red carnations and white daisies flanked by long tapers in silver holders.

Good food, good companionship, good conversation and good feeling was enjoyed by all. A very successful "Doctor's Day" event.

MAHASKA COUNTY

A luncheon meeting of the Mahaska County Medical Auxiliary was held at the Downing Hotel, Oskaloosa, on Tuesday, March 13, at one o'clock. Mrs. Kenneth Lemon presided at the business meeting which followed.

Six dollars toward the AMEF fund was collected from members present. It is hoped that others will contribute later.

Mrs. Lemon urged that the members write their Congressmen, telling of their disapproval of HR 4222, the King-Anderson Bill.

Plans were started for Doctor's Day. Mrs. Lemon arranged to get a proclamation in the newspaper from the Chamber of Commerce. On the eve of Doctor's Day, the Auxiliary entertained the doctors at a dinner at the Elmhurst Country Club. Dr. and Mrs. Alberti presented the program, showing and commenting upon slides of their trip to Europe.

WAPELLO COUNTY

The Wapello County Medical Auxiliary met at the home of Mrs. R. A. Hastings, in Ottumwa, on March 13, with Mrs. K. R. Kingsbury and Mrs. P. I. Ekart, as assistant hostesses.

Delegates to the City Industrial Planning meeting were named, and Mrs. P. W. Scott reported on plans for a field trip to Omaha that the Future Nurses Club members are to take. Following Mrs. D. G. Emanuel's report from the City Health Committee, a decision was made to donate a piece of equipment which the Home Nursing Service may lend to families that need it. As a part of the health program, two cancer films were shown.

The following officers were elected for 1962-1963: president, Mrs. Richard A. Hastings; president-elect, Mrs. Leland H. Prewitt; vice-president, Mrs. Dennis G. Emanuel; secretary, Mrs. Robert D. Dalager; treasurer, Mrs. Paul W. Scott.

The April 3 meeting of the Auxiliary was held in the home of Mrs. L. H. Prewitt, with Mrs. H. R. Wood and Mrs. D. W. Wetrich as assistant hostesses. A report on the recent Ottumwa Industrial Growth Committee meeting was given. The sponsoring of another student nurse was discussed. Contributions to AMEF and for the school band's trip to the Kiwanis Convention in Denver were approved. Following the business meeting, the Northwestern Bell Telephone Company presented a film on interior decorating.

Announcement

A.M.E.F. has been combined with the American Medical Research Foundation, to be called AMA-ERF. This changeover for the Woman's Auxiliary, however, will not take place until July 1, 1962. In the meantime, the Auxiliary's project will still be known as A.M.E.F.

Des Moines-Polk County Home Care-Homemaker Program

The Polk County Medical Society's Committee on Aging, appointed in 1958, studied the various problems of the aged, and, on March 25, 1960, recommended to the Council of the Society that $500 be contributed toward the establishment of a Home Care-Homemaker service. At that time, the Society requested the help of the Auxiliary in investigating the possibility of establishing such a service.

A committee was appointed from the Medical Auxiliary and a prolonged investigation was carried on. It was found that virtually every health and social work individual and group in Polk County recognized the need for a homemaker service and was anxious to cooperate in establishing it and assuring its success.

During 1960 and 1961, various groups interested in this project were brought together at the office of the Council of Social Agencies. It was obvious that the largest obstacle to overcome was the financing of such a venture. Many suggestions were made, but nothing definite was forthcoming. The Polk County Medical Society had already donated $500, the Polk County Heart Association had given $500, and this past Christmas the Medical Auxiliary gave the proceeds from its Christmas card project—a total of $1,570.00. Since it had been estimated that the cost per year for hiring one caseworker and five full-time homemakers would be approximately $25,000, it was obvious that funds would have to be obtained from other sources.

In August, 1961, the Council of Social Agencies

found that it might be possible to obtain a grant from the United States Public Health Service for a three-year demonstration program. At the end of that time the Home Care-Homemaker Service could be expected to have proved itself and could find local support. A budget was prepared and an application submitted to the U.S.P.H.S. for $25,000 per year for three years. This planning and the resulting prospectus entailed much study and prodigious work on the part of Miss Alice Whipple, executive secretary of the Council of Social Agencies. The grant was approved, and as of February 1, 1962, Mrs. Frances Shambaugh, a well qualified caseworker, was employed as the coordinator of the Home Care-Homemaker Service.

The operation of the Home Care-Homemaker Service will be under the direction of Dr. James Speers, director and Dr. Julius Connor, assistant director, of the City-County Health Department, both of whom are trained physicians, and the Council of Social Agencies. The director and the assistant director of the City-County Health Department will provide medical review, supervision and administration of the medical and nursing aspects of the program, and will provide medical direction to the Home Care-Homemaker Advisory Committee. Also, they will be the liaison officers between the project services and the individual physicians.

Mrs. Shambaugh, the coordinator, has been busy recruiting, training and hiring women as homemakers. She will decide which families shall be provided homemaker service, and she will make sure the service is not overutilized in any instance. She will see to it that each family gets the social services that it needs, but she won't provide the services herself. They will be rendered, in all instances, by workers attached to one or another of the public or private agencies in the city. Her further duties will include assigning and supervising homemakers, approving payments to them, and collecting fees for their work.

The Council of Social Agencies Home Care-Homemaker Advisory Committee, the chairman of which is a medical Auxiliary member, will assume responsibilities similar to those of a private welfare agency board. It will consist of representatives of 36 groups that need to participate in this project to assure its development, acceptance and eventual support as a locally-maintained welfare service after the demonstration funds have expired. This committee will set policies and act on monthly reports from the medical director, the caseworker and C.S.A. staff members. The groups represented are:

Polk County Medical Society
Polk County Medical Auxiliary
Polk County Society of Osteopathic Physicians
Polk County Osteopathic Physicians Auxiliary
State Department of Health
Blue Cross-Blue Shield
Public Health Nursing Association
Division of Vocational Rehabilitation
Joint Committee on Health Care of Aging
Polk County Health Improvement Society
Younker Rehabilitation Hospital
Hospital Council
Broadlawns Hospital
Iowa Chapter, Arthritis and Rheumatism Foundation
American Cancer Society
American Heart Association
Polk County Tuberculosis Association
Polk County Muscular Dystrophy Association
Polk County Multiple Sclerosis Society
Polk County Chapter, National Foundation
Polk County Retarded Children's Association
Polk County Mental Health Association
Polk County Association for Crippled Children and Adults
Goodwill Industries
Veterans Administration Center
Polk County Welfare Department
Polk County Board of Supervisors
Family Service-Travelers Aid
Catholic Charities
Iowa Children's Home Society
Polk County Chapter, American Red Cross
United Community Services
Department of Adult Education, Des Moines Public Schools
Iowa State Employment Service
Junior League
Polk County Labor Council
State Commission on Aging

Fees are to be collected from families according to their ability to pay. When a family is receiving monetary assistance from a social work agency, the agency providing it will be charged approximately the actual cost of homemaker service.

Iowa and some surrounding areas lack home care-homemaker services. In order to extend benefits provided Polk County through federal funds, the Home Care-Homemaker Service Committee will hold an annual institute to which interested organizations and individuals throughout Iowa and surrounding unserved areas will be invited. The Adult Education Department of the Des Moines Public Schools, the State Department of Health and the health education director of the City-County Health Department will assist the Committee in developing and publicizing the institute.

On March 14, 1962, the first class, 14 unusually high-calibre women, completed the training course for homemakers. They are enthusiastic and eager to start the program. The course, under the Adult Education Department, consisted of ten two-hour sessions, extending over a five day period. It was taught by members of the various groups of the Advisory Committee. Subjects taught were primarily the philosophy of working and being around people who are ill, the meaning of illness in a family, understanding the elderly, and family life in relation to food. It was assumed, and correctly

so, that the women who would apply to take a homemaker course would already possess the ordinary skills of homemaking.

On March 27, 1962, the first meeting of the Advisory Committee was held, after which the Home Care-Homemaker Service started operation.

It is to be noted that the Des Moines-Polk County Home Care-Homemaker Service has been established as the result of a community-wide effort, with both casework and medical supervision. Because of its solid foundation and because of the high enthusiasm of all interested groups, we are practically assured of the success of this new and long-awaited venture. The Polk County Medical Auxiliary is happy to be a part of such an effiort.

—MRS. ALLAN PHILLIPS
Chairman, Home Care-Homemaker Committee, Polk County Medical Auxiliary
Chairman, Advisory Committee of Home Care-Homemaker Service, Des Moines Council of Social Agencies

Recreation Safety—Bicycles
Tips for Safe Biking

1. Remember—when you ride a bike, the traffic lights, signs and laws are meant for you! Please obey them.
2. Make sure your bike is licensed, if required by law in your community.
3. Know hand signals and when to use them.
4. Walk your bike across busy streets and within white lines at intersections.
5. Keep both hands on the handles at all times, except when making signals.
6. Ride your bike on the sidewalk whenever possible. It's not allowed, however, in business or congested areas.
7. If necessary, ride on the right side of the street, close to the curb, and move with traffic.
8. Watch for parked cars turning out, and for car doors opening.
9. Travel single file when riding in a group, keeping a full bike length behind the preceding bike.
10. Stop, look and listen before entering a street from sidewalk, driveway or alley.
11. Don't carry passengers or heavy bundles.
12. Check your bike out monthly on these points: handle grips, saddle, wheels, reflectors, brakes, chain, pedals, crank hangar, bell or horn, handle bars, fork lights, spokes, tires, tire valves, and rear view mirror. Also check for loose nuts, bolts and screws.

POINTER FOR PARENTS

It's up to you to lay down the law on dangerous bike stunts and traffic dodge games. But most of all, your example of caution and courtesy behind the wheel of the family car will strongly influence your youngster's biking habits.

Home Safety—Falls

1. Anchor all scatter rugs (use anti-skid or liquid spray adhesive).
2. Repair loose stair and porch railings.
3. Repair worn steps and stair treads (use non-skid treads or sand mixed with paint on concrete basement stairs).
4. Provide furnishings and bathroom fixtures that are suitable for older persons (grab bars, bath tub mats, bed rails and firm, high-seated chairs).
5. Install window gratings or sturdy screens for youngsters.
6. Keep backyard play equipment (swings, slides, etc.) in good condition and properly balanced.
7. Have swing gates at the top *and* bottom of staircases for toddlers.
8. Clear floors immediately after spills, especially water and grease.
9. Provide adequate lighting, located at the entrances to all rooms and at the top and bottom of staircases.
10. Clear steps, driveways and sidewalks of ice and snow as soon as possible.
11. Use ladders or step-stools for *all* climbing chores, and keep them in good condition.

CADUCEUS CAPERS

Tuesday, May 15—Banquet and Dance
Des Moines and Terrace Rooms—Hotel Savery

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Evan Morgan's Orchestra

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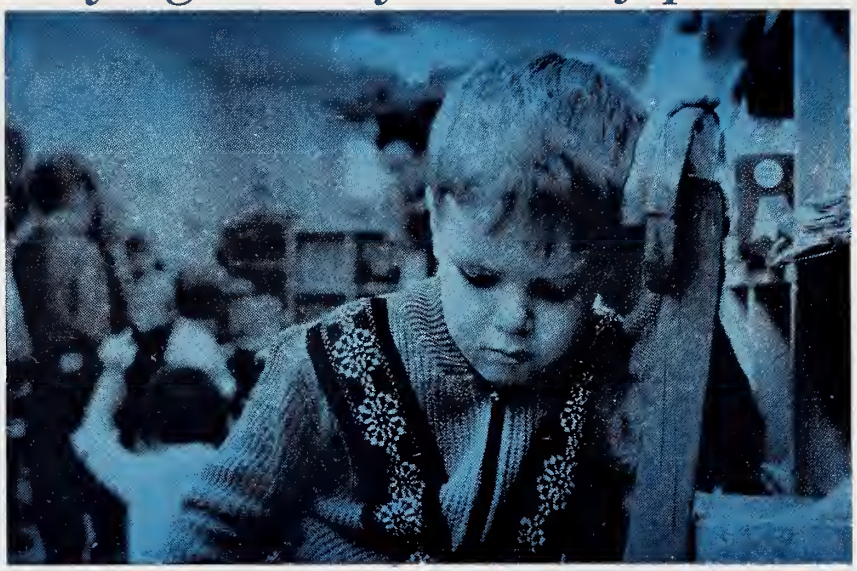

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REFERENCES: (1) Roseman, E.: Neurology **11**:*912, 1961. (2) Bray, P. F.: Pediatrics* **23**:*151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: M. Clin. North America* **42**:*317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) Ibid.: Postgrad. Med.* **20**:*584, 1956. (7) Merritt, H. H.: Brit. M. J.* **1**:*666, 1958. (8) Carter, C. H.: Arch. Neurol. & Psychiat.* **79**:*136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.*

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Medical Legislation From the Standpoint Of the Legislator

HON. BOURKE B. HICKENLOOPER
Senior U. S. Senator From Iowa

It is a pleasure indeed to be here today and visit for a short time with the Iowa Medical Society in its Annual Convention. It is also an appropriate time to meet with the medical people of my state because of the major legislation and discussion affecting the relationship of your profession, the government and the whole field of health care in the nation.

You are familiar with the major provisions of the legislation that is now before the committees of Congress proposing limited benefits for the aged under the Social Security system. There are others with somewhat different approaches. Then there is the Kerr-Mills bill already on the books and being rapidly implemented in the states.

In 1960, we passed the Kerr-Mills law which provided the framework for making available certain benefits to approximately 10 million persons over 65 years of age who could meet the eligibility requirements. As you know, one of the main provisions of this plan was that each state could formulate its own eligibility standards, which, under our system of government, is in harmony with the fundamental belief that the states had a responsibility to adapt such programs, which primarily concerned themselves, to internal conditions within the state.

Incidentally, in the event that you may have forgotten, Senator Anderson and the then Senator Kennedy proposed at that time an amendment to attach the Kerr-Mills program to Social Security. Fortunately this approach was defeated.

PRESENT PROPOSALS

We now have before the Congress an Administration bill which ties medical assistance to Social Security. This bill is confusing and deceptive. It penalizes those who have provided for their old age and can take care of their own medical care, to favor those who have not. It fails to emphasize need, but it would be a large foot in the door for opening the entire field of medical care to the bureaucrats.

Today the United States, under a private system supplemented by public contribution in case of proved need, has the best medical care of any nation in the world. We long have had effective self-help medical plans in keeping with the American tradition of personal responsibility. Where misfortune intervenes, local programs and financing, in cooperation with our doctors, normally provide the necessary care and service. In practice, the aged person not getting adequate medical care is the exception, and it is not because such needed care is unavailable. I do not think legislation such as that proposed is necessary. I believe we should stay with successful privately-financed plans and existing law.

Apparently others agree with me. A distinguished gentleman from California has said bluntly of free hospitalization proposed for a segment of the aged, "We can't afford it." In FREEMAN MAGAZINE for June, 1960, he said that such extension of free aid "is bound to be merely the first step to an enormously expanded and still more expensive Federal health care program." He added that, by itself, this program would either add greatly to our taxes or make inadequate our available funds for Social Security. This man? He is today the Postmaster General of the United States, a member of the Kennedy Cabinet, the Honorable J. Edward Day.

The busy propagandists who want to use the appeal of public health to expand political bureaucratic control try to create the impression that opposition to them and their program is almost like being against God, Mother, and Home. The fact of the matter is, however, that much of this legislation will provide—not needed benefits to the aged—but income and salaries to the bureaucrats who operate under Parkinson's law, and who are inclined to increase the Table of Operations to utilize all available funds which can possibly be earmarked for administration. I sincerely hope you doctors do not end with a bureaucratic "big brother" at each elbow advising on an operation. Seriously, it seems apparent that much of the drive behind this politically-conceived and inadequate plan is nothing but the bureaucratic urge for greater political power, regardless of cost or effect. We have all heard about "lies and statistics." Self-serving statistics have been issued by this Administration—which "in the

Senator Hickenlooper gave this address at the Annual Meeting of the Iowa Medical Society, in Des Moines, on May 15, 1962.

wink of any eye" can change a horse chestnut into a chestnut horse—thus falsely "proving" that the country is veritably populated by individuals who in mortal pain are residing in hovels without the benefit of medicine, or a physician's care.

A huge lobby has been established in Washington called by the high-sounding name of the National Council of Senior Citizens for Health Care Through Social Security. Its offices are plush; its money—apparently unlimited. It publishes a bulletin entitled "Our Responsibility to Our Parents" —and then, in an amazing bit of forensic legerdemain, advocates that we all abdicate our responsibility to our parents to some Uncle named SAM. The astute reporters of the NEW YORK HERALD TRIBUNE however have been able to trace its management and direction—the path leads right into the very offices of the White House.

Despite its high-sounding name, this organization is nothing but a political lobby aimed at exploiting the fears of *some* elderly people in attempt to corral the votes of *all* our senior citizens.

FOREIGN EXPERIENCE IN FEDERALLY DOMINATED HEALTH PLANS

Many years ago Patrick Henry told the people of Virginia in one of his famous orations, "I have but one lamp by which my feet are guided, and that is the lamp of experience."

It is surprising to me that some responsible people in this country may be deluded into advocating programs which have been tried in many parts of the world and which, without exception, have ended either in dismal failure or excessive public cost and, moreover, have reduced the proficiency of the medical profession and its service to the public.

In France, government budgets for national health services have been strained so that funds are not available for research; the health services provided have required a special tax of 6 per cent on employees and 29 per cent on employers, and the schedule of benefits has exhausted assets.

In West Germany, the availability of state medical services seems to promote abuses in the demand for them. Companies employing 5,000 persons as a practical routine apply for 5,000 sickness certificates a quarter, for they know that almost every employee will find it convenient to report sick at least once in the quarter. The cost of drugs in France has increased over 50 per cent in *six* years, whereas in the United States, under our private system, the increase has been only 37 per cent in 23 years.

In Australia, such a load of work has fallen upon the "socialized doctor" and his service to the needy patient has so deteriorated, that demand for the private doctor is rapidly increasing. Increasing numbers of people are willing to pay for and demand private medical services, despite the heavy taxes for socailized medicine. Australian doctors are compelled to depend upon the medical research of the United States because of the breakdown of research under socialized medicine.

In Japan, a member of the Japanese Doctors Association, Dr. Akira Osada, has urged the United States to continue opposing socialized medicine. In Japan the income of physicians is recognized to be in one of the lowest brackets in the medical world, with salaries to doctors ranging from 50 cents per office call to $41 for difficult lung surgery. No wonder that under such a line production operation they "paint them with idodine and mark them 'duty.'"

In England, the doctor is subordinate to the bureaucrat, and the art and science of medicine is reduced to an instrument of politics. The cost of the British health program, passed by the Labor party after World War II, turned out to be three times the "promised" figures. It now costs $2.5 billion a year, and even its *supporters* admit that its service is grossly inadequate. With government medicine, the British built only *one* hospital in the entire British Isles during the *ten-year* period 1948-1958. In the United States, under our private medical system and local responsibility for health care 658 new hospitals were built during the *nine-year* period 1948-1957.

In the State of Colorado, a constitutional amendment was passed in 1956 to finance a health and medical care program for aged persons who receive state pensions. Because of glowing propaganda about it, affected citizens of Colorado responded so enthusiastically that current costs of the program almost double the 1958 cost of $5.7 million. State officials have now scaled down the widely-heralded experiment, cutting hospital stays to 18 days, limiting nursing-home care to the very feeble, and letting the aged enter hospitals only in emergencies. Free ambulance rides have had to be abolished.

The CHICAGO TRIBUNE has said, "Colorado's failure, with a program covering only 52,000 persons, demonstrates the basic uneasiness about President Kennedy's vastly greater proposal."

POLITICS AND MEDICAL ASSISTANCE

Under the philosophy of "Tax and tax; spend and spend; elect and elect," government planners in this country today have turned the entire question of medical care for our aged into a political stratagem. The political implications should be obvious.

If we permit a medical assistance program to be tied to Social Security, at every national election there will be new demands for increased benefits. Some politicians who desire office, regardless of convictions, will make more extravagant political promises to our elderly people to extend and increase every conceivable type of medical benefit and service, irrespective of need or ability to pay. It is not inconceivable that, if

such a program is adopted, the day might come in the near future when a person's income tax will be exceeded by his Social Security deductions. Though now the aged are described as those persons 65 and over, I foresee the day when as a result of pressure groups, with the shorter workweek, with more leisure activity, with higher pay for less productivity, pressure for reducing the age for receiving benefits will increase, and the age limit will drop until every mature person may be regarded as a "needy aged citizen." . . . Then we shall have had it.

Why isn't there enough accent put upon the necessity of making sure that there are enough doctors for all the people who get sick in this in this country—a point the Administration ignores entirely.

The number of medical school applicants has steadily declined—from 24,242 applicants in the school year of 1948, to 14,951 in the school years of 1959-1960. The problem which you doctors, and we in government, should concentrate upon is: What can be done to assure our people enough doctors? How can we revive the principle of private responsibility that has made us the great nation that we are?

Several colleagues of mine on the Finance Committee of the United States Senate verify the opinion that the actual cost of the Social Security approach will be billions of dollars above and beyond the official estimates. In the past their estimates have been far more accurate than the so-called statistics of government.

May I suggest further that if the present trend toward eroding the value of the dollar continues it will deprive those who depend on their savings, dividends, stocks and pensions and Social Security retirement funds of their independence, and force them to become unwilling wards of the government—not only for medical care, but for other necessities as well.

The fact of the matter is that there has been an increasing erosion of our voluntary free enterprise system. In every field, political effort is attempting to establish a government planned economy over our private enterprise system.

The record shows that the federal government is attempting more and more to acquire power from the people, from the states and from the Congress, and to centralize it in the bureaucratic agencies.

I could talk to you indefinitely about this drive toward power through spending, giving detail after detail; the facts are clear, but time is limited.

In fact, between January 10 and May 1, the Administration has made 62 requests of Congress involving more spending and 25 requests for more power. Despite campaign promises of almost two years ago, it is obvious that no real effort has been made to cut spending or balance the national budget. Power through spending and control of our economy through taxes—and a vast bureaucracy—this seems to be the pattern, and its prospects are ominous.

If all the programs are adopted which the so-called New Frontier advocates, this could become our *last* Frontier.

Before I conclude, I want to say that all of us are inclined to forget the contributions which private medicine has made to the American people and the world. By way of illustration, remember the great influenza epidemic of 1917-1918 in which 500,000 died in three months and another 500,000 were permanently damaged. You physicians seem to have conquered this. Thanks to you, we haven't had such epidemic losses since then. The other great strides you have made in solving the cause, relief and cure of human disease are phenomenal. This progress has been made under a free system. Its record cannot be matched if government takes control. In fact, it can only deteriorate.

Your profession has given every American, child and adult, the expectation of a longer life and better health. Now the bureaucrats would take over.

I have often used a quotation from Macaulay which sums up a great deal. I should like to conclude by quoting it to you:

"Nothing is so galling to a people . . . as a paternal, or in other words a meddling, government, a government which tells them what to read and see and eat and drink and wear."

Rehabilitation of Arthritis Patients

The University of Colorado School of Medicine and other sponsoring organizations will present a three-day postgraduate conference on the management and rehabilitation of patients with arthritis, in Denver on July 5, 6 and 7. This conference is unique in that it is designed especially for the wide range of health professions active in the care of such patients. Concepts of disease mechanisms, diagnosis, management and rehabilitation will be among the subjects discussed.

The guest faculty will include, among others, the following physicians: Ephraim P. Engleman, M.D., president of the American Rheumatism Association, San Francisco; Ronald Lamont-Havers, M.D., medical director of the Arthritis and Rheumatism Foundation, New York City; Harold S. Robinson, M.D., medical director, British Columbia Section, Canadian Arthritis and Rheumatism Society, Vancouver; and Donald L. Rose, M.D., chairman, Department of Physical Medicine, University of Kansas School of Medicine.

For further information, address the Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20.

Nuclear Medicine to Be Major Topic At AMA Annual Meeting in Chicago

"Medicine in the Atomic Age" is the theme of the American Medical Association's 111th annual convention which will be held at McCormick Place in Chicago, June 24-28. In support of that theme, a special half-day program entitled "Nuclear Medicine—Present Achievements and Future Promise," will be presented on Tuesday morning, June 26, under sponsorship of the AMA Council on Scientific Assembly. Program chairman is Dr. Lee E. Farr, of the Brookhaven National Laboratories, Upton, New York, a member of the Council, and the moderator will be Dr. Stuart W. Lippincott, also of Brookhaven.

With more than 500,000 medical patients a year in the United States now receiving radioactive tracers for diagnostic purposes and with another 100,000 getting isotope radiation therapy, radioisotopes can no longer be considered curiosities. The total quantity of radioisotopes sold to industrial and research organizations in the United States by the Atomic Energy Commission over the past 15 years has amounted to about 1,300,000 curies of radioactivity. This year alone U. S. users are expected to buy more than 2,000,000 curies worth.

The American Medical Association's nuclear medicine program will be one of the highlights of the doctors' convention. Subjects and speakers are:

—"The Place of Cobalt 60 in the Management of Human Cancers" by Dr. Gilbert H. Fletcher, of the University of Texas, M. D. Anderson Hospital and Tumor Institute.

—"The Present Place of Radioactive Iodine in Management of Thyroid Disease" by Dr. Brown M. Dobyns of the Cleveland Metropolitan General Hospital.

—"Why Radioactive Isotopes in Diagnosing Liver and Kidney Disorders?" by Dr. George V. Taplin, of the University of California Medical Center, Los Angeles.

—"Radioactive Fallout—Its Significance for the Practitioner" by Dr. Charles L. Dunham, of Washington, D. C.

—"Has the Nuclear Reactor a Future Place in Cancer Therapy?" by Dr. Farr of Brookhaven.

—"Alpha Particle Radiation in the Pituitary in Various Chemical States" by Dr. John H. Lawrence of the University of California at Berkeley.

Side by side with surgeons, radiation specialists have made great strides in increasing the power and effectiveness of atomic radiation. Especially in the last 20 years, developments in nuclear physics and high voltage engineering have resulted in more efficient modalities of delivering radiation for the management of human cancer.

At the Brookhaven National Laboratories, the first atomic reactor designed exclusively for medical treatment was built. The reactor, actually a small atomic power plant, produced powerful gamma rays and neutrons for the treatment of deep-seated cancer. Neutrons, acting as "atomic guided missiles," go straight to the hidden cancer tissues without harming healthy tissues. The reactor also produces radioactive isotopes for treating cancer.

One of these isotopes is known as Cobalt 60. Radioactive Cobalt 60 machines, the most powerful of those artificially producing nuclear radiation for cancer treatment, have been installed in many institutions across the country. The source of radiation is a cylinder of cobalt, one-third of an inch in diameter and one and one-tenth inches long. Its small size permits the technician to pinpoint a radiation beam to the tumor more accurately than is possible with other technics.

Dr. Fletcher, one of the lecturers on the AMA program, said that Cobalt 60 therapy "has been a great step forward in the management of previously unfavorable types of cancers such as those of the oropharynx, the advanced cancers of the uterine cervix, and those of the urinary bladder. For relief of pain or for prolongation of life by remissions, as in the lymphomas, it is easier to deliver the proper dose with much less discomfort to the patient.

"One of the most promising lines of clinical investigation is the combination of pre-operative irradiation in surgery of many cancers which yield poor results to one of the disciplines alone. An example of pre-operative radiation studies is found in lung cancer, cancer of the urinary bladder and cancer of the breast."

Only recently researchers at the University of Maryland reported that they have been using Cobalt radiation, pre-operatively, on lung cancer patients for the past six years. The purpose of the radiation is to kill cancer cells in surrounding tissue that the surgeon may miss. Of 45 patients treated, 12 are alive from one to three years. In the studies so far, the cure rate has been increased to about 10 per cent. Only about five in 100 lung cancer victims live five years or more.

In his lecture at the AMA meeting, Dr. Farr will report on a new radiation technic in attacking brain tumors. Boron salt is injected into patients; their brain tumors are then exposed to neutrons from a nuclear reactor. Although the mechanism is not clear so far, it appears that boron and neutron radiation together produce an effect that neither produces alone. Studies at Brookhaven National Laboratories already encompass 10,000 mice and 51 cancer patients. An unusual fact about the boron-neutron treatment is that it can be used after maximum doses of other radiation have been tried and have failed. Also, no damage is done to surrounding healthy tissue.

Scientific Articles

Surgical Emergencies In the Neonatal Period

ROBERT T. SOPER, M.D.
Iowa City

THE PURPOSE OF this paper is to discuss some of the conditions which arise during the neonatal period to threaten the infant's well-being or life. These conditions vary as to cause, location, symptoms produced, and methods of diagnosis and treatment. However, they have three factors in common. First, they are present at birth or develop shortly thereafter, within a matter of minutes or hours. Second, they involve systems which are vital to the infant's life. Third, promptness is mandatory in establishing the precise diagnosis and in instituting appropriate therapy. These conditions will be discussed as to cause, symptoms produced and emergency care. Definitive treatment will be briefly mentioned only when it differs from emergency care, and then only in general terms.

Table 1 contains a convenient subgrouping of these conditions. The first group consists of those which compromise the upper airway by obstruction, compression or deviation. These conditions are somewhat rare and involve only about five per cent of the babies whom we are considering. Nonetheless, they are important to know about, since any decrease in the airway needs to be recognized and rectified quickly. Second is the group of conditions which are primary within the cardiopulmonary system and which produce symptoms by atelectasis, reduction of the venous return to the heart, shift of the mediastinal structures and interference with respiratory excursions. These are somewhat more common, and involve about one-third of the babies whom we are discussing. Last is the group of conditions primary within the gastrointestinal tract. These are much more common but warrant less consideration since the symptoms which they produce to threaten life are relatively slower in developing, better understood by most of us and more easily treated.

Etiology of Neonatal Surgical Emergencies. Table 2 summarizes the causes of the conditions we are considering. They are primarily teratological—that is, they involve failure of normal development and are either environmental or genetic in origin.

TABLE 1

NEONATAL SURGICAL EMERGENCIES

Location:
Upper Airway—choanal atresia, micrognathia, cystic hygroma, congenital goiter
Cardiopulmonary—Tracheo-esophageal fistula, diaphragmatic hernia, aortic arch anomalies, pneumothorax, lobar emphysema, lung cyst
Gastrointestinal—intestinal obstuction, pneumoperitoneum

TABLE 2

NEONATAL SURGICAL EMERGENCIES

Causes:
Teratological—most important
Transplacental—congenital goiter
Humoral—pneumoperitoneum
Iatrogenic—pneumothorax, lobar emphysema, pneumoperitoneum

Dr. Soper is an assistant professor of surgery at the S.U.I. College of Medicine, and he made this presentation at the Refresher Course for General Practitioners. in Iowa City, during February, 1962.

Congenital goiter of the newborn, however, occupies a special place in that it is produced by a thyroid hyperplastic stimulus of maternal origin, transmitted to the infant across the placental barrier. Next are humoral factors which produce the acute, so-called stress ulcer occasionally seen in the newborn infant, which commonly perforates to produce pneumoperitoneum. Finally, there is a group of iatrogenic origin, resulting from overly zealous efforts at artificial respiration, or the forceful passage of nasogastric or rectal tubes and rectal thermometers.

UPPER AIRWAY EMERGENCIES

Posterioir Choanal Atresia: Posterior choanal atresia is a developmental defect in which the buccopharyngeal membrane fails to perforate (Figure 1). The buccopharyngeal membrane runs from the sphenoid bone down to the hard palate, and if retained, it produces complete closure of the posterior nasal air passage. This defect occurs in female babies slightly more often than in males, and is bilateral as often as unilateral. There is also an associated hypoplasia of the sinuses and palate.

Symptoms with unilateral choanal atresia occur only with obstruction of the patent side by mucous plugs or exudate from an upper respiratory infection and, therefore, are varied and somewhat less predictable than those resulting from bilatral involvement. In the latter disorder, symptoms of upper-airway obstruction are produced very early. Babies normally breathe through the nasal passages as a matter of choice, and of necessity during oral feedings. Consequently, infants with bilateral choanal atresia are mouth breathers, and develop severe respiratory distress when oral feedings are attempted. Diagnosis is simple indeed. It involves passing a catheter through the nose and meeting an obstruction in the posterior nasal passageway.

If the obstructing membrane is composed of merely two layers of mucous membrane, then treatment is correspondingly simple. It involves perforating this membrane with a blunt instrument and dilating the passageway, perhaps at weekly intervals, to keep the airway patent. On the other hand, this membrane is occasionally fortified by cartilage or bone, and if such is the case, then a definitive plastic excisional procedure is required. This definitive operation is not carried out in the newborn period, however, and with bilateral atresia, auxiliary methods of feeding must be instituted, such as a gastrostomy tube, until the corrective operation can be performed.

Micrognathia: Micrognathia, or small jaw, is perhaps better recognized as the "Andy Gump syndrome" (Figure 2). It involves a hypoplasia of the mandible, jaw and tongue, and a failure of support of these hypoplastic structures. Whenever the infant is placed in the supine position, the lower jaw and associated structures gravitationally prolapse posteriorly to obstruct the pharynx in this area.

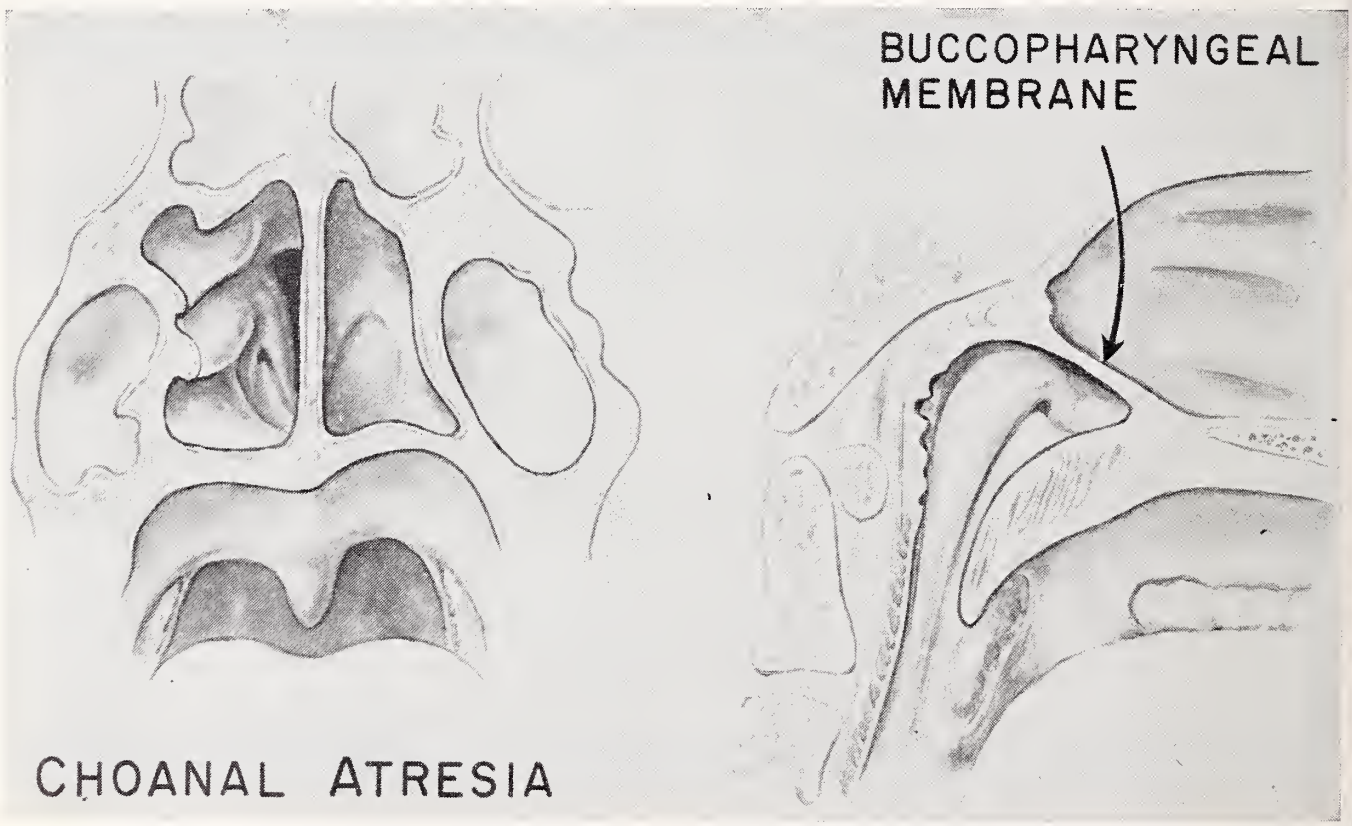

Figure 1. Posterior choanal atresia, a congenital anomaly in which the buccopharyngeal membrane has failed to separate.

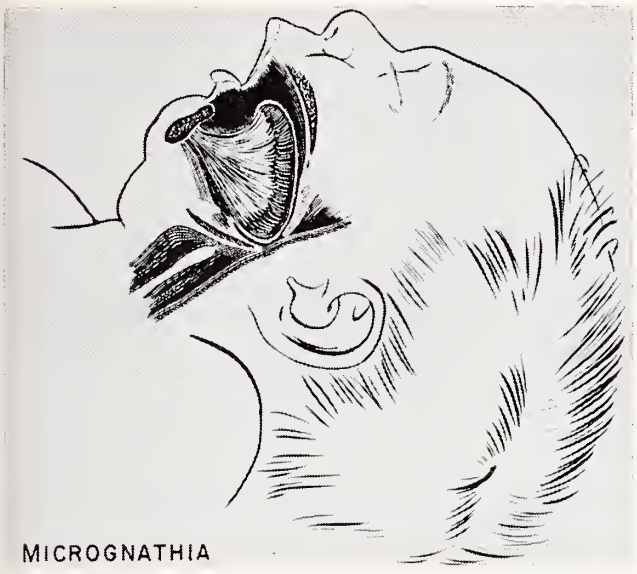

Figure 2. Note the obstruction of the oropharyngeal airway (in black) when the infant with micrognathia is supine. The mandible and tongue prolapse posteriorly.

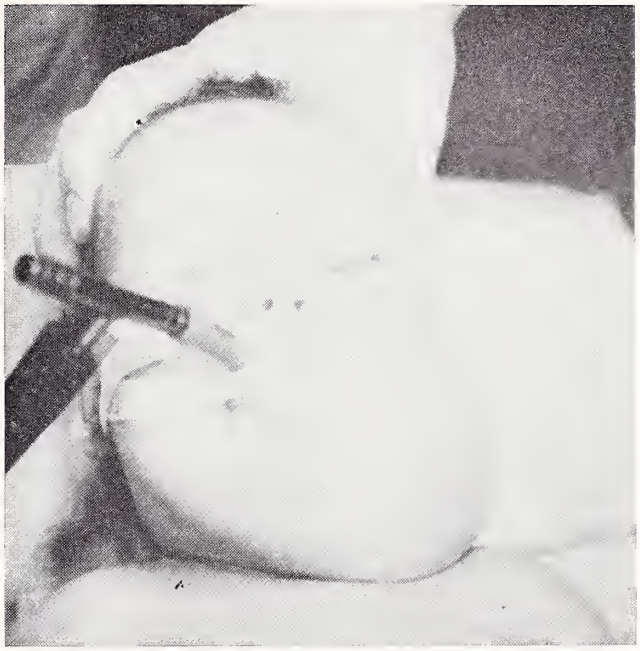

Figure 3. Infant with large cystic hygroma arising in the left cervical area and seriously interfering with the airway. The baby is being anesthetized via an orotracheal tube preparatory to surgical resection.

The diagnosis can be made at a glance. These babies have a very characteristic profile which is not confused readily with any of those produced by other entities. Therapy, likewise, is often simple, and involves positioning the infant on his side or abdomen so that the jaw will not prolapse and obstruct the airway. Infants with severe degrees of involvement—and the degrees do vary somewhat —occasionally require temporary tracheostomy or auxiliary feeding methods. Ultimately the infants will outgrow this hypoplasia and lack of support. By the time they are three to six months of age, obstruction of the esophagus and trachea improves, and then the problem becomes one of cosmetic correction which will not be considered in this paper.

Cystic Hygroma: Congenital cystic hygroma is recognized (Figure 3) as a unilateral, cystic and generally rather soft mass arising on one side of the neck. It is composed of abnormal collections of lymph or tissue fluid within endothelial-lined spaces which have not developed proper connections with the thoracic duct. The condition is ordinarily progressive. The cysts are multiloculated so that they do not lend themselves well to needle aspiration. These lesions can be of considerable size at the time of delivery, and will progressively enlarge, encroaching upon and deviating the trachea.

The diagnosis is again simple, for it can be made by observation and transillumination. Treatment depends upon the degree of tracheal obstruction. Sometimes, as an emergency measure, simply changing the position of the infant's head and neck will suffice to give an adequate airway. Sometimes passage of a nasotracheal tube is mandatory, and occasionally emergency tracheostomy is necessary. Aspiration of the mass to reduce its size is generally ineffective because of its multiloculated nature. Furthermore, aspiration introduces the possibility of infection.

Definitive management consists of complete excision. The cysts tend to intertwine around important neurovascular structures of the neck, and so the definitive surgical procedure is technically difficult in many instances.

Congenital Goiter: Congenital goiter is due to a thyroid hyperplastic stimulus originating in the mother which is transmitted across the placenta to stimulate the embryo's thyroid. Until well into this century, the commonest cause for this stimulus was iodine deficiency in the maternal diet. Today, maternal thyroid-stimulating hormone or maternal ingestion of anti-thyroid drugs are most often incriminated. Very rarely is the stimulus due to maternal diets that are high in thiouracil compounds such as are contained in rutabagas and soybeans.

Again, diagnosis is simple (Figure 4). It can be made by observation and palpation of a solid mass low in the neck which is almost symmetrical bilaterally, and which is connected by a bridge or isthmus across the midline. The symptoms are produced by the same mechanism by which goiters cause airway problems in the adult, but because the infant's trachea is more collapsible, the condition is more likely to be emergent at this age. Emergency treatment must be tailored to the degree of tracheal obstruction. Occasionally, simple positioning of the neck will provide an adequate airway or a nasotracheal tube may need to be passed, as illustrated in Figure 4. On the other hand, if the thyroid is large and if the infant is in

real distress, then consideration must be given to emergency tracheostomy and isthmusectomy.

Any of the measures employed to provide an airway in patients with congenital goiter are temporary, since the stimulus to thyroid hyperplasia is withdrawn at the moment of delivery. The gland will quickly begin to regress in size, and may be barely discernible by the time the infant is one to two weeks of age.

CARDIOPULMONARY ANOMALIES

Esophageal Atresia: Microscopic sections of a human embryo about 4 to 4½ weeks of age will show a single tube lined by epithelium located in the mid-mediastinal area. This tube quickly divides in a longitudinal plane into two separate tubes, the definitive trachea anteriorly and esophagus posteriorly. Interference with this splitting mechanism results in esophageal atresia with tracheo-esophageal fistula.

Figure 5 illustrates the common anatomic arrangement seen in this condition. Variations on this theme are seen in approximately 90 per cent of these children, namely a blind proximal esophageal pouch, the distal esophagus communicating with the trachea by means of a fistula at or near the carina. The symptoms can be predicted from the anatomic abnormality. The nurse in the newborn nursery usually makes the initial observation that the infant appears "mucus-y." The baby seems to be producing an excessive amount of saliva. This illusion is due simply to overflow and regurgitation of normal amounts of saliva from the blind esophageal pouch. Next, the observant person will notice that there is some degree of abdominal distention. This is due to inspired air passing into the stomach via the fistula during each respiratory cycle. When oral feedings are attempted, the infant develops acute distress, with coughing, explosive regurgitation, vomiting, cyanosis, etc. Finally, because of the fistula there is retrograde passage of gastric juice from the stomach upward into the lung fields, resulting in chemical pneumonitis.

The diagnosis is once more reasonably simple. It involves the passage of a soft, No. 8 French rubber catheter gently through the nose, and recognizing that it impinges in the lower cervical or upper mediastinal area. This can be confirmed by using a catheter with a radiopaque tip, and then finding by means of a chest radiograph that the tip has coiled up in the high mediastinal area. Further confirmation of the diagnosis of esophageal atresia can be established by injecting 2-3 cc. of a water-soluble radiopaque material through this same tube to outline the proximal esophageal pouch. Larger volumes of radiopaque material are not needed for diagnosis and, indeed, might be dangerous because of overflow aspiration. The esophageal pouch should be aspirated until empty at the conclusion of the radiographic study.

Emergency treatment of esophageal atresia in-

Figure 4. Infant with congenital goiter producing tracheal airway obstruction. Note the facial edema due to interference with cervical venous drainage. The nasotracheal tube was necessary to provide an emergency airway.

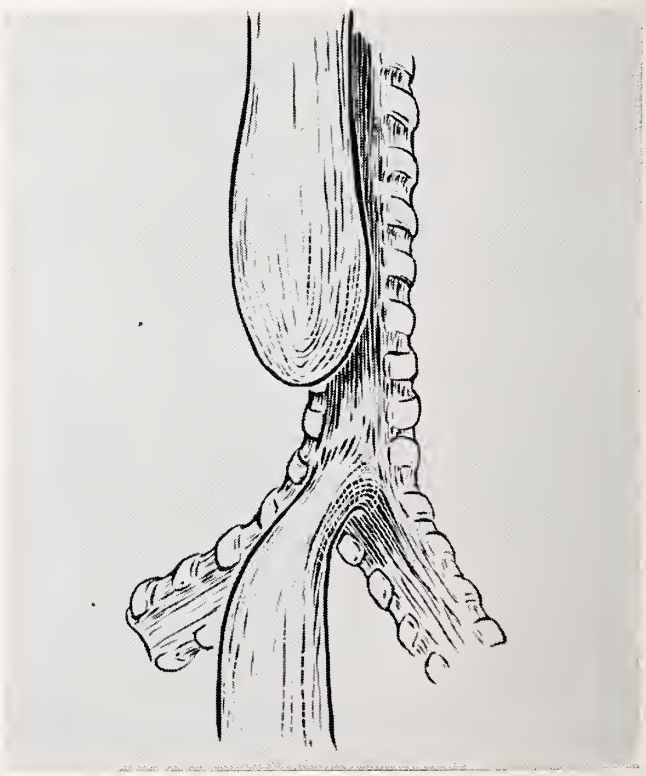

Figure 5. Esophageal atresia with tracheo-esophageal fistula, common type.

cludes periodic aspiration of mucus and saliva from the atretic proximal esophagus. Oral feedings must be withheld. The infant should be kept in a head-up position (reverse Trendelenberg) to obviate retrograde passage of gastric juice into the lungs. Definitive operative management is technically difficult and is not germane to the scope of this paper.

Pneumothorax: Pneumothorax of the newborn is generally due to overzealous attempts at resuscitation which result in alveolar rupture and dissection of air across the visceral pleura and into the thoracic cavity. Diagnosis is to be suspected in a baby who does not respond well to resuscitative efforts and who develops a hypertympanitic hemithorax with diminution in breath sounds and a shift of the cardiac impulse to the contralateral side. Confirmation is afforded by a single upright radiograph of the chest, as demonstrated by Figure 6, which reveals air in the thoracic cavity, atelectasis of the ipsilateral lung, shift of mediastinal structures to the contralateral side and some compression of the other lung.

Treatment is by simple needle aspiration or underwater-seal tube drainage, allowing reexpansion of the collapsed lung and sealing of the leak (Figure 6). Prevention, in the guise of gentle and careful attempts at resuscitation of the newborn infant, is still better treatment.

Progressive Pulmonary Emphysema: A condition allied to pneumothorax is progressive pulmonary emphysema in the newborn. Again, this is a condition due to overzealous resuscitative efforts, with rupture of alveolar septa allowing inspired air to pass interstitially within and through pulmonary tissue. Occasionally this is confined to one lobe, but it often involves multiple lobes of each lung.

Figure 7 is a photomicrograph which illustrates this alveolar-septal rupture. Treatment is unsatisfactory because of the diffuseness of the lesion, and excisional therapy is reserved for those localized to one lung or to a portion thereof.

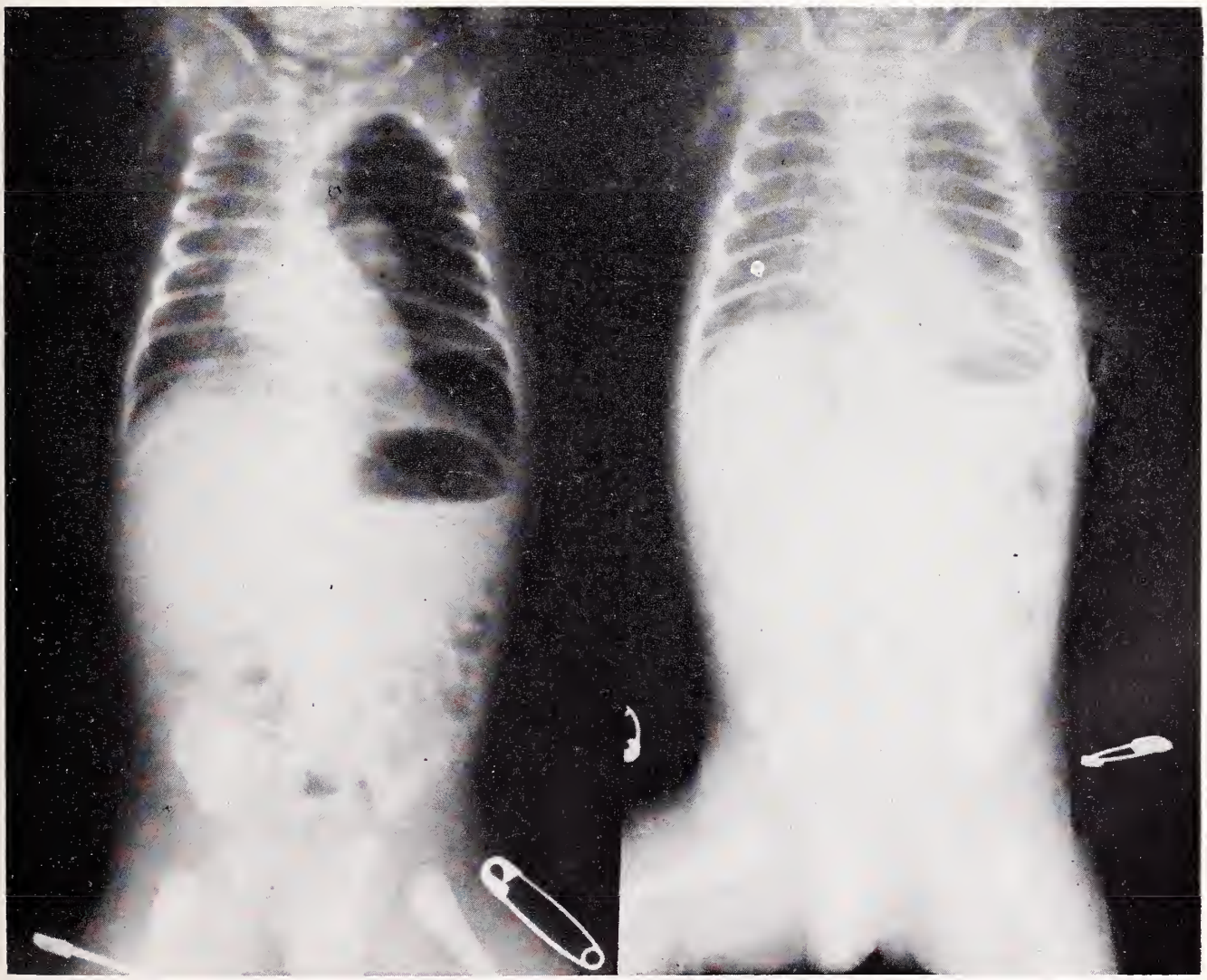

Figure 6. Roentgenogram at left illustrates neonatal pneumothorax on the left side; note the collapsed ipsilateral lung and the shift of the mediastinal structures to the right. The photograph on the right is of the same patient 24 hours after placement of an intercostal tube connected to underwater-seal drainage; the changes have been completely corrected.

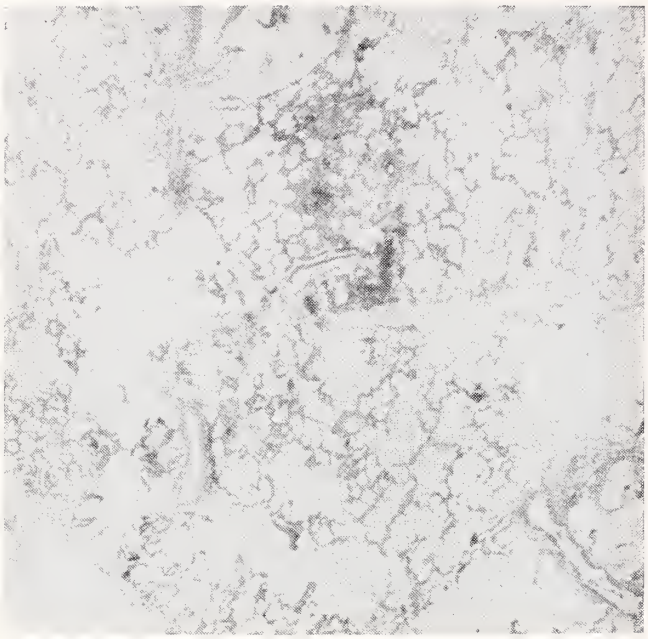

Figure 7. Photomicrograph of lung in baby with progressive pulmonary emphysema. Note the extensive rupture of alveolar septa.

Congenital Cystic Disease of the Lung: Congenital cystic disease of the lung is a rarely-encountered condition in which there is ball-valve effect in the bronchus leading to a segment of lung. Inspired air enters the involved area of lung and is entrapped therein because of the retrograde bronchial obstruction, resulting in progressive overdistention. This collapses the remaining portion of the ipsilateral lung and shifts the mediastinal structures to the opposite side. Figure 8 illustrates the progression of this phenomenon during a 24-hour period of time. Figure 9 demonstrates the lesion grossly. Note the extremely overinflated upper lobe and the collapsed lower lobe on the same side.

Emergency treatment consists of tube underwater-seal drainage of the cystic area of lung. Artificial respiration is mentioned only in condemnation, since this worsens the overdistension. The baby should not be intubated or artificially respired until the surgical team is ready to perform definitive thoracotomy and resection of the overdistended lobe.

Congenital Diaphragmatic Hernia: The last car-

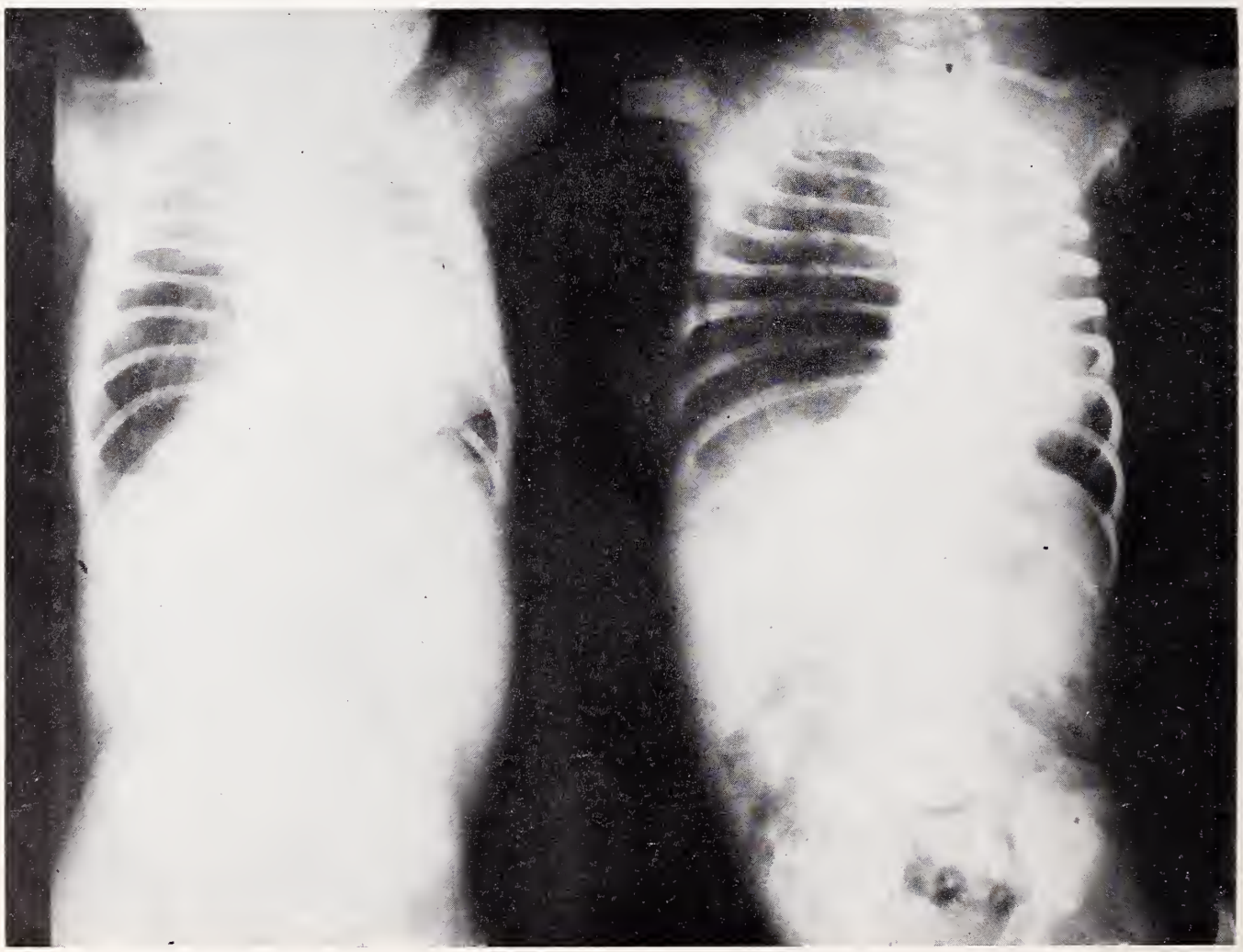

Figure 8. Roentgenogram at the left is of an infant with a congenital cyst of the right lung; note the rarefaction in the right hemithorax, with shift of the mediastinal structures and compression of the contralateral lung. Roentgenogram on the right is of the same infant 24 hours later, showing progressive worsening of the changes.

diopulmonary condition to be discussed is congenital diaphragmatic hernia. Eighty per cent of these occur through the foramina of Bochdalek, or the pleuroperitoneal canals. These foramina are located in the upper posterior portion of each hemidiaphragm. They represent the last part of the diaphragm to acquire fibromuscular support during embryologic development, and effect the separation of the pleural cavity above from the peritoneal cavity below. It is understandable that this is the site most commonly involved in an embryologic failure of closure and a consequent congenital hernia. About 90 per cent of the hernias involve the left side because of the tamponading effect of the liver which is located on the right side. However, Figure 10 is a photograph taken at postmortem of a baby with a hernia of the right side of the diaphragm. Notice the relatively large amount of the infant's viscera which has herniated into the right hemithorax. The heart is displaced to the left, and there is severe atelectasis of both lungs. Obviously, this is a situation incompatible with life. The respiratory problem will be progressive as the child swallows air and distends the herniated intestine, producing a true emergency that must be recognized and treated most quickly.

Diagnosis should be suspected in an infant in respiratory distress with a hypertympanitic hemithorax, a diminution in the breath sounds on that side and a shift of the cardiac impulse to the opposite side. Upright radiographs of the chest reveal air-filled viscera within the chest and the shift of the cardiac shadow.

Figure 9. Operative photograph illustrating cystic disease in the upper lobe (to the right) and compression atresia of the lower lobe (to the left).

Emergency treatment consists of administering artificial respiration, preferably by means of nasotracheal or orotracheal tube, although bag and mask is a perfectly acceptable alternative. Nasogastric suction should also be instituted.

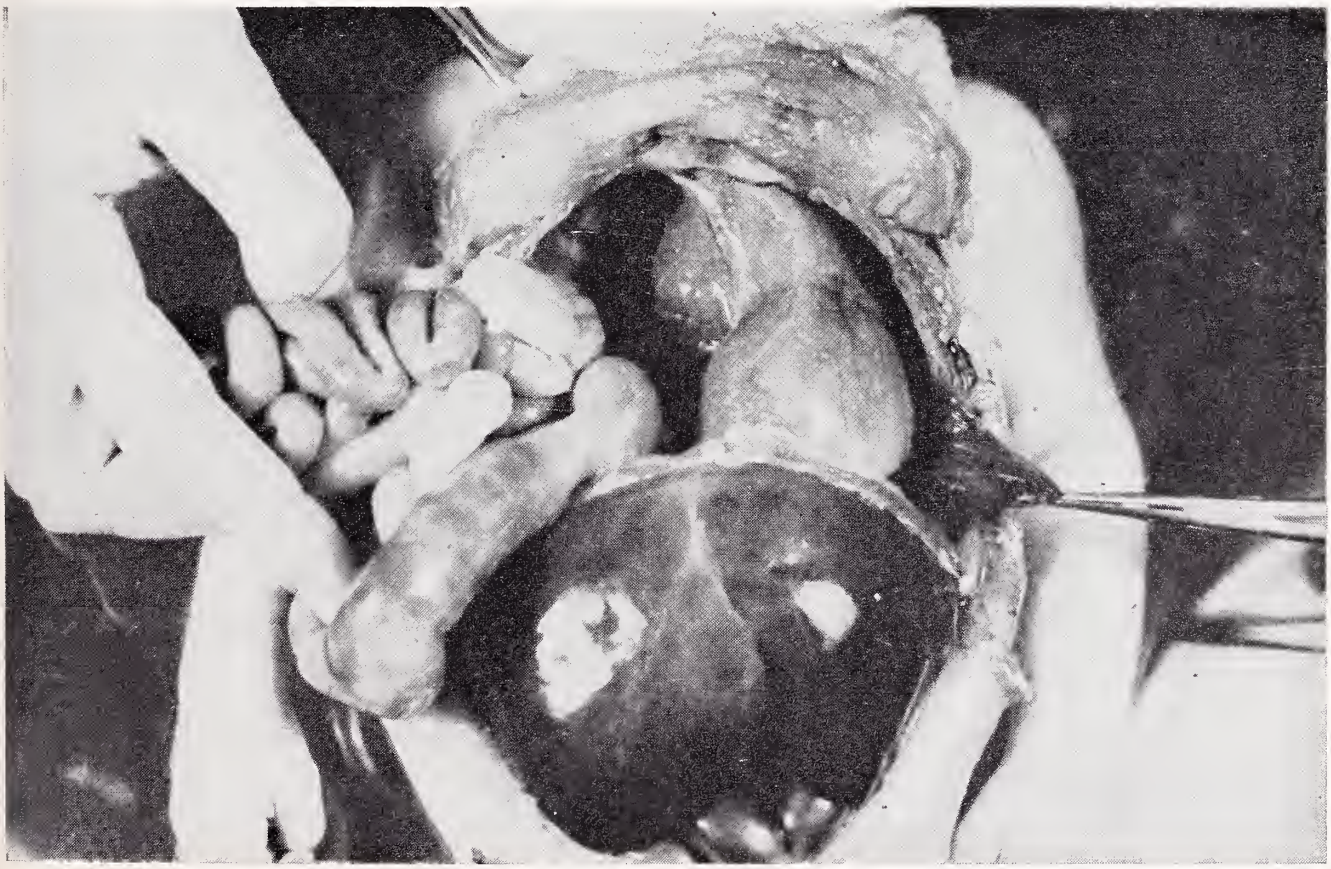

Figure 10. Photograph taken at postmortem of an infant with congenital hernia through the right foramen of Bochdalek. Note the hollow viscera filling the right hemithorax and resulting in displacement of the heart to the left side and compression atelectasis of both lungs. The liver fills most of the peritoneal cavity which can be seen.

Definitive therapy is difficult and, in essence, consists of reduction of the herniated viscera and repair of the diaphragmatic defect. Most of these defects can be closed by sutures, but occasionally they are so large that a prosthesis is required to bridge the gap. One third of these babies will have other associated major congenital anomalies.

GASTROINTESTINAL ANOMALIES

Pneumoperitoneum: Pneumoperitoneum arising in the neonatal period is, fortunately, a quite rare catastrophe. Most are due to perforation of hollow viscera proximal to mechanical or functional obstructions. The mechanism is the same as that by which perforation occurs with ileus in any other age group, namely an increase in intraluminal pressure, compromised blood supply, ischemic necrosis and perforation. There is, in addition, a group of perforations of the stomach and duodenum which are either acute, punched-out stress ulcers of possible humoral origin, or are linear lacerations due to forceful passage of nasogastric tubes or secondary to unknown mechanisms. The mortality rate from pneumoperitoneum in the neonatal period was about 90 per cent as recently as 20 years ago, and even today approximates 50 per cent.

Diagnosis should be suspected in any acutely ill, shocked infant with a progressively distending, hypertympanitic abdomen and diminished bowel sounds. It can be confirmed by a single upright radiograph of the abdomen (Figure 11) which demonstrates free air within the peritoneal cavity.

Emergency care includes nasogastric suction, the administration of parenteral fluids and electrolytes, antibiotics and other supportive measures. Definitive management in the form of surgical exploration should be carried out as expeditiously as possible to close or exteriorize the perforation.

Intestinal Obstruction: Intestional obstruction in the newborn will be discussed only very briefly. Table 3 summarizes the more common causes of ileus in this age group. The symptoms are secondary to intestinal dilatation proximal to the point of obstruction, and include elevation of the diaphragm with interference of respiratory excursions and compression of the inferior vena cava resulting in a reduction of the venous return to the heart.

TABLE 3

CAUSES OF ILEUS IN THE NEWBORN

Stenosis
Atresia
Annular pancreas
Malrotation of midgut
Volvulus
Meconium ileus
Hirschsprung's disease
Imperforate anus

The threat of aspiration of vomitus with sudden death is possible in any infant with untreated intestinal obstruction.

The diagnosis is generally reasonably simple to make: the baby does not pass meconium normally, has progressive abdominal distention and vomits bile. Supine and upright radiographs of the abdomen confirm the presence of obstruction and often reveal the level of the gastrointestinal tract involved; they will not indicate the nature of the obstruction. However, further radiographic studies are rarely indicated, since they seldom help in elucidating the nature of the obstruction, and since exploratory laparotomy is mandatory anyway for definitive therapy. Radiation exposure of the infant is another factor for consideration in this respect.

Emergency management employs the same principles as those for infants with pneumoperitoneum and will not be reiterated. As alluded to previously, definitive management requires exploratory laparotomy and correction of whatever obstructing mechanism is found.

CONCLUSION

Some of the more important conditions which arise during the neonatal period to threaten life have been discussed. The simplicity of diagnosis and emergency care has been emphasized, as well as the need for precision and promptness in carrying out these measures. Specialized technics and personnel are necessary for definitive care in only a few of the conditions that have been discussed.

Figure 11. Upright roentgenogram of an infant showing a large amount of free air above the liver and beneath the diaphragm.

The Management of the Patient With Headaches

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When I get ruminative about headache syndromes, I sometimes conclude that there are only two kinds of headaches: those which are relatively mild and which seldom come to the attention of the physician but get better by themselves, and a second kind that are quite severe, which almost invariably come to the attention of physicians, and which nothing seems to help, despite the efforts of the patient and the physician. However, I feel that way only during pessimistic moments, perhaps after being unable to help two or three patients in a row. There is a middle ground, and it is that middle ground that I want to discuss.

What I should like to do, very simply, is to begin with the commonest type of headache syndrome, then to progress to the next-most-common type, and so on until I have covered the headaches that make up approximately 90 to 95 per cent of those that are clinically encountered.

When faced with a new headache patient, the physician has certain comforts. First, in excess of 95 per cent of all headache syndromes are caused primarily by disorders involving structures outside the skull, rather than inside, and less than one per cent of all headaches are caused by major, life-threatening illness. Thus, the chances of missing a very serious disorder by misdiagnosing headache are not great. Rather, the problem is one of trying to relieve pain, reduce misery and increase productivity for the patient. Consequently, the emphasis is somewhat different in treating this syndrome, as compared with treating many other medical disorders.

SKELETAL-MUSCLE-CONTRACTION HEADACHES

The first kind of headache syndrome, which, as I indicated, is the commonest, is the so-called skeletal-muscle-contraction headache that is variously called "tension headache" or sometimes "psychogenic headache." It is the sort that appears most often on television, usually in the person of an actress portraying a distraught housewife. The pathophysiology of this headache is believed to be an increased contraction of muscles of the face, neck, and scalp, together with a vasoconstriction of the nutrient arteries of these vessels. Thus the mechanism of the pain in part represents an increased skeletal-muscle contraction, and in part an ischemia at the very time when more blood is needed.

This pain is described by patients as being felt usually in the occiput or the neck, the shoulders, sometimes the top of the head and, less commonly, all across the forehead. It is almost always bilateral. The pain is characteristically dull, deep, aching and non-throbbing. This is the kind of headache which may either be brought on or be aggravated by intense visual activity—a long drive, ill-fitting spectacles and prolonged watching of television, prolonged reading, etc. However, these usually serve only to trigger individual headaches, rather than to provide a background on which most of them occur. The great majority of patients who have frequent headache attacks of this kind will also have associated personality and mood disorders, and these may take the form either of anxiety and preoccupation about what may happen next or depression, blues, pessimism, and "I'm no good," "Nothing's worth very much" obsessions. Once such a patient begins to talk in this way, it is rather hard to get him to deal with anything else. This is the background, or what in preventive medicine we call the "remote host factor," whereas the proximal factors are individual episodes of prolonged reading, ill-fitting spectacles, and so forth. This is not to say that these headaches are imaginary or even that the patients complain excessively. If you want to demonstrate that such a thing is present, you have only to put an electromyograph on the pertinent skeletal muscle, and you'll find long strings of potentials indicating excess skeletal-muscle activity. Now these headaches may last for minutes, for hours, for weeks or for months. These are the kind that almost everyone gets.

I want to be very candid about the general effectiveness of treatment in these disorders. Pharmacotherapy, at the present time, is not highly effective. First of all, most of the so-called tranquilizers do not appreciably help this kind of disorder. Chlorpromazine—Thorazine—and related

Dr. Ostfeld, an associate professor of preventive medicine at the University of Illinois College of Medicine, made this presentation at the Refresher Course for General Practitioners, at Iowa City, in February, 1962.

phenothiazines are not particularly effective in conditions of this sort. Nor are the rauwolfia alkaloids. Perhaps the most effective of the so-called tranquilizers in this disorder is meprobamate—Equanil or Miltown—and this drug is effective probably not because of its tranquilizing properties but because it depresses certain kinds of neural activity in the spinal cord and, possibly, in those parts of the brain stem that are concerned with cranial nerve activity. Specifically, it depresses interneurones in the spinal cord and tends to relax skeletal musculature.

Other somewhat simpler measures for the management of this particular kind of headache consist of old standbys—warm baths, salicylates and small doses of barbiturates. I'm not prepared to take a stand on which salicylate gets into the blood stream faster, causes less gastrointestinal upset or acts "faster . . . faster . . . faster."

As for what can be done to readjust the life situations of these patients, I think that the physician has an obligation to spend a bit of time seeing what specific things are wrong, if anything, and asking the patient to direct his attention toward improving them. I have not observed that psychiatrically oriented treatment is effective in most cases. Why this is true, I don't know. I suppose that it is because of the basic inflexibility of most of these patients. I am not very sanguine about the amount of help that they can get in this particular kind of disorder. I don't mean that these emotional factors aren't relevant; rather I regard them as most relevant of all, but the degree of relief that the majority of patients have achieved through attempts to deal with the emotional factors is quite minimal.

MIGRAINE

Now the next most common headache syndrome is the one about which most is written, and I deliberately did not put it first because in spite of the volume of literature about it, it is not the commonest kind of headache by a long shot. It is the so-called migraine variety. There is confusion about migraine, for the literature itself is confused. Some people make the diagnosis only if pre-headache visual phenomena are present, such as scotomata, certain auras and various kinds of transient neuromuscular weakness. This all appears to be rather irrelevant. I certainly don't intend to spend any time on our own investigation in this area, but if you assume that the *sine qua non* of the migraine syndrome is dilatation, usually of extracranial but sometimes also of intracranial arteries, then you have won the pathophysiologic battle.

There is no profit in trying to base your diagnosis on the presence or absence of scotomata, preheadache visual phenomena, or gastrointestinal disturbances involving the liver. The most profitable definition of migraine, in terms of what patients tell us can be couched in four terms: (1) There is a positive family history of the headaches. This you will get in 75 to 90 per cent of cases, if you inquire carefully. (2) The headache is unilateral at its onset, although not necessarily as it progresses. (3) There is some kind of upper-gastrointestinal disturbance in association with the headache. This is seldom vomiting. Usually it takes the form of anorexia and nausea. Vomiting is unusual, except after drugs have been given in an attempt to relieve the headache. (4) The next criterion is one that has been established again with ease at a large university hospital, but is established only with difficulty under the conditions that obtain in private practice. It is a good therapeutic response to about .4 to .5 mg. of ergotamine tartrate injected subcutaneously or intramuscularly within one hour after the onset of headache. If a patient is seen under these circumstances, a therapeutic trial of this material is warranted.

Now these are the most important criteria for diagnosing vascular headache of the migraine type. As I said, the pathophysiology is a dilatation of extracranial vessels, usually, and intracranial vessels less commonly. What one observes in about a third of the cases is that the superficial temporal or the posterior auricular or occipital arteries will be found enlarged and tender to palpation. This is a common clinical finding during a vascular headache of the migraine type. One that I don't think is emphasized enough is that the relevant artery and the scalp around it are quite tender to palpation, and that this tenderness persists for as long as two or three days after a severe headache. The tenderness is appreciated by the patient in that his hat makes his head sore, his glasses irritate his scalp where the bows touch it, and that a comb, when he runs it through his hair, reaches certain sore or irritated spots.

The scotomata occur if there is vasoconstriction in a retinal artery or its branches, or in those intracranial vessels which supply areas XVII and XVIII of the occipital cortex. This does not occur in every vascular headache of the migraine type, and if it doesn't, the headache goes on and is very much the same.

There are certain other kinds of phenomena which are associated with migraine. These are accumulations of fluid occurring hours to days before the onset of the headache attack, and you may want to prevent these accumulations of fluid from occurring through the use of various kinds of diuretics—not that you can always do this. You can "iron out" the fluctuations in weight of these patients without affecting the frequency and severity of the headache attacks. Thus the inference is plain that the headaches and periodic fluctuations in weight gain are concomitant but independent manifestations of some disorder in the patient.

Now as for what we might call again "host fac-

tors,"—what in the patient causes these things, and "environmental factors"—what in the environment causes them—there are really only two things that we know very much about at the present time. Though there is one of them that a physician can do nothing about, he can do something to control the other, provided that he has a bit of luck and a cooperative patient. This disorder appears to be genetically determined. In the language of the geneticists, it seems to be inherited as a simple Mendelian recessive with about a 70 per cent penetrance. Now, eliminating the jargon, I can interpret that as meaning that if both parents have this kind of headache, the chances that any one of their children will have it are about seven out of 10. When only one of the parents has it, the chances of any one of the offspring's having it are about 4.5 out of 10, and when neither parent has migraine headaches clinically but is a carrier, so to speak, the chances of a youngster's having them run about one out of four. In arriving at these statistics, studies were made of family groups in which at least one member had migraine headaches.

Nothing can be done about a person's genetic equipment, and what a migraine patient has inherited is probably some instability and irregularity of the circulation that comes from his carotids. There is something peculiar about the circulation in the head of a human being. He blushes in his head, neck and shoulders, but a similar degree of vasodilatation has not been observed in other parts of his body. Extracranial arteries can dilate from the size of the lead in a pencil up to the size of the pencil itself. No similar vasodilatation occurs in the arteries of the extremities and viscera. This phenomenon seems to have a great deal to do with the disorder that I have been discussing.

So much for the inflexible host factor. The other thing that seems to trigger headaches consists of certain patterns of living. The patterns of behavior of which I speak have nothing to do with neuroticism, or with anxiety or depression, in the ordinary sense. They have to do with the ways some people have of attacking their tasks.

Now if I were to draw the picture of the typical migraine-prone individual, I should portray him as one with the genetic predisposition, of course, but he would also be one who characteristically juggles three or four balls in the air at the same time, and one who always manages to make the simplest task as complex and difficult as possible. He fails to distinguish between important and unimportant things, and characteristically is in a much higher state of physiological readiness than his tasks really demand.

A simple example might be pertinent. A migraine-disposed housewife—one who is predisposed, genetically, to the development of migraine headaches—gets a phone call from her husband at 10 o'clock in the morning, saying that he is bringing four guests home for dinner. She is an orderly sort of person who has planned, on that particular day, to clean the downstairs and to do the laundry. She is not going to change her schedule just because her husband insists on bringing guests home. However, she has certain standards about what constitutes an adequate home and about what she should do for her husband, and she will not send to the restaurant for ham or fried chicken. She insists on preparing an adequate meal herself.

So far, this is all very well and good. However, she decides that each of her tasks must be done extremely well and with singular care, and when she has made that decision, her body goes into a state of unusual readiness—hyper-alertness, hyper-arousal. She subdivides her day so that she vacuums for 15 minutes, then dashes off to look at the food, then runs to the basement to check on the washing machine, and thus is on a merry-go-around throughout the entire afternoon.

The house will be clean and all her other tasks will be done. The dinner will be excellent, and the dishes will not have been left in the sink. At about two o'clock in the morning, after everything has been put away, she will say, "Thank goodness, that's over." But at that point her headache will begin.

It is quite typical for this disorder to start "after the battle," and there must be some kind of association between that portion of the brain stem and thalamus which is concerned with arousal mechanisms, the so-called reticular activating system, and the portions of the brain which are concerned with vasodilatation. There must be some sort of let-down phenomenon that induces this particular kind of disorder.

One might suppose that simply by pointing out to such a lady that her behavior has a share in causing her trouble, a great deal might be done about reducing the frequency of her headaches. But the task isn't all that simple.

A state of super-readiness and over-conscientiousness contributes to prominence and success in business, in professional activities, and even in women's clubs. If one has high standards, if he drives himself and if he does extremely well in everything he attempts, his efforts "pay off." In consequence, many people are willing to suffer an occasional headache. The reward, if not simply the self-satisfaction that comes from doing a good job, is ample recompense for the pain. Only if the patient reaches the point where he thinks he has "had enough," will he be ready to consider alternative behavior patterns.

In my experience, the patients who have come to recognize that this pattern of behavior is theirs and who have been willing to adopt alternative ways of doing things have amounted to no more than 25 or 35 per cent. Thus, many people know what is wrong but will do nothing to change it,

and it seems to me that the physician's responsibility ends with pointing out, in a common-sense way, how the patient can avoid trouble by arranging his life differently.

TREATMENT FOR MIGRAINE

What about drugs for this kind of disorder? There are drugs that can be administered for the the acute headache attack, and fortunately—though only recently—a useful prophylactic agent has been introduced. Of the medications that can be used in treating particular attacks, ergotamine tartrate remains the drug of choice.

If ergotamine tartrate can be administered parenterally, so much the better. If not the parenteral, the next most effective form is the suppository. Only about 30 per cent of orally-administered ergotamine tartrate is absorbed through the gastrointestinal tract, and thus the pills are not nearly so effective as are the suppositories or the injections. If one must give the pills, it is probably better to give those preparations in which caffeine is combined with ergotamine tartrate, and which also contain an anti-emetic.

The labels of most bottles of ergotamine tartrate for oral administration contain the statement that two pills should be taken at the start of a headache, and then one pill should be taken every half-hour until the headache is gone. I think those instructions inappropriate. We know that if ergotamine tartrate is taken an hour or more after the start of a headache, the headache will not be relieved in the majority of cases. The important thing to do is to get an effective dose into the body early during the headache. Thus, instead of administering two pills initially and then one every half-hour, it seems to me that the patient should be told to find out what dose, taken all at once, will relieve a majority of his headaches—whether it be two, three or four pills—and then to take that dose as soon as possible, and none thereafter.

I am well aware of the literature regarding the toxicity of ergotamine tartrate, but in administering the drug to several hundred patients, I have seen only one case of such toxicity marked by anything other than nausea and vomiting. Thus, I think that the toxicity, though it does occur, has been overrated. A great deal of the literature dates back to the early days when people were taking large amounts of it because not much was known about it, and occasional cases of gangrene occurred.

Certainly there are some contraindications to ergotamine tartrate: moderately severe essential hypertension, known cerebrovascular disease, coronary artery disease, peripheral artery disease, disorders of the liver, pregnancy and the presence of significant fever. A great many patients who have mild labile hypertension, with pressures of about 150/100 mm. Hg, can be given this drug. Ergotamine tartrate is the backbone of the treatment of the individual headache attack.

It is better, of course, not to use analgesics, if one can get by without them, for the milder analgesics are not particularly effective, and those that are strong enough to be effective are capable of inducing addiction. Darvon seems to represent the intermediate in effectiveness between the salicylates and codeine, in the 32 and 65 mg. doses, and this is a popular preparation largely, I believe, because it is new rather than because it is effective. Codeine has the lowest addiction liability of all the commonly-used narcotic analgesics, and next to it is a drug which is used very seldom —and I don't know why, for it has an analgesic potency which resembles that of morphine and yet its addiction liability is considerably less. It is methadone. The dose is the same as that of morphine; it can be administered by mouth; the rate of development of tolerance is slow; and there are occasional patients in real misery from this disorder for whom one must do something of this sort.

There are patients who exhibit "status migraine," severe, prolonged headaches usually in association with severe reactive depressions. They sometimes must be hospitalized and do need potent drugs. I think methadone is the safest of these agents.

MIGRAINE PROPHYLAXIS

Now with respect to prophylactic agents. Again reserpine, chlorpromazine and, in this case, meprobamate do not fill the need. The tranquilizers are not effective agents for preventing vascular headaches of the migraine type. Indeed reserpine seems to increase the frequency with which they occur. You may have had experience with using reserpine in patients with hypertension, and have found that they develop facial flush, stuffy nose and a syndrome that resembles parasympathetic hyperactivity. Many of these patients develop headaches that are physiologically quite similar to those of the migraine type. Thus reserpine, chlorpromazine, meprobamate and all the other agents of this class are not particularly effective here.

Here again, whenever an "ivory-tower type" talks to a group of men who must meet the problems of day-to-day medical practice, there are always individual exceptions to everything that he says. Perhaps there are occasional patients who will benefit from some of these agents that I have said are worthless for this purpose. Thus I caution you that what I say is based on experience with large groups of patients. I certainly would not want to predict what might happen in an individual case, but there are decisions that have to be made on the basis of what is in the literature, and it is to these broad decisions that I have been referring.

Now very recently there has come to be some reason to believe that the pharmacopathologic

physiology of migraine is related to a local increase in tissue serotonin. I understand that serotonin and carcinoid had quite a go-around at these meetings last year, so I shan't talk about them at all except to say that there may be an excess of serotonin locally in migraine, and that as a prophylactic agent a drug called methysergide or U.M.L. appears to hold some promise as a prophylactic agent in migraine. This agent is not effective when administered for a headache attack. It is effective when it is administered three or four times daily, in 2 mg. doses over a period of weeks, for preventing the occurrence of headaches. It is effective only prophylactically. Now it is not a remarkable answer, for it appears to benefit only between 50 to 70 per cent of patients when taken as a prophylaxis. But the people who get this material are the "tough cases." I have about 40 patients who never had received relief from any other prophylactic agent over a period of several years, and slightly more than half of them have obtained real benefit from this drug. I believe that this represents an advance in the prophylaxis of migraine.

The toxic effects are usually upper-gastrointestinal distress and some slight feelings of giddiness. Among the several thousand cases that have been so treated, there have been about six cases reported with pathologic vasospasm in one or more extremities. The vasospasm usually terminates when the drug is stopped. It is not possible now to foresee how much of a problem vasospasm will be when methysergide is widely used.

OTHER TYPES OF HEADACHE

I intend devoting no more than about two minutes to the two other commonest kinds of headaches, for I have already dealt with them in large part. The so-called "psychogenic headache" is almost invariably either migraine or skeletal-muscle-contraction headache. If it is not, it may be a frank hysterical conversion symptom which has no basis in pathologic physiology, and in a sense the patient is putting on an act in order to gain some objective, whether it be to get out of something or into something. But this is a relatively uncommon kind of headache—one which has no basis in disturbed physiology but is, in effect, a complaint alone.

The last kind is the so-called post-traumatic headache. Those headaches which occur after trauma and which clear up within two, three, four or five weeks usually are related to the effects of the trauma. But the headaches which continue for months or years after trauma usually are skeletal-muscle-contraction headaches or migraine headaches. Less commonly, they may be a painful neuroma or scar, and by palpating the scar or examining the scalp carefully for neuromata, one may be able to tell whether the cause is one or the other. If novocaine infiltration relieves the pain, you have achieved a diagnosis. This is the least common of the post-traumatic headaches. As I said, the most common are skeletal-muscle-contraction headaches and migraine headaches—the same sorts that occur in people who haven't been bumped on the head. And the same principles of treatment apply to these sorts of post-traumatic headache as those which apply to the skeletal-muscle-contraction and migraine headaches that have no association with trauma.

CONCLUSION

I have tried to be honest with you in this discussion. There is a great deal that we don't know, and when I read about headache too often, I am disturbed by people who write definite statements and appear to have all the answers. We have only a very few partial answers, and I think it is fair and honest to indicate that such is the case.

Just Like a Doctor's Prescription—Used to Be

Candor requires an analysis of the too often repeated slogan "just like a doctor's prescription" —which emphasizes compounding. A private survey of retail and hospital pharmacies tells us exactly what a doctor's prescription in 1962 is like. It is not likely to be made up of more than one ingredient. The pharmacists questioned were generally agreed that 75 per cent of the prescriptions filled are single directives, and only 25 per cent are compounded. One pharmacy estimated as high as 90 per cent are for single items.

The trend, of course, has been away from the shotgun to the high-speed rifle. "Just like a doctor's prescription *used to be*" more nearly expresses the situation.

Why should doctors be dragged into this sales pitch, anyway? If it is unethical for doctors to advertise, is it not just as unethical for doctors to be advertised? Decency finally prevailed when actors dressed in white coats and posing as doctors in commercial presentations were removed from the microwaves. Now let us strive to have all mention of doctors removed from this great American folkway!

Every man is his own lawyer, billed as "just like a lawyer's brief" makes as much sense!

—From an editorial in the NEW YORK STATE JOURNAL OF MEDICINE, 62:1567, (May 15) 1962

Peripheral Arterial Occlusive Disease: What Can the Surgeon Offer?

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THE LESIONS OF peripheral arteries which are amenable to surgical treatment include aneurysms, occlusive disease, and the vasospastic disorders. In this discussion, we shall limit ourselves to arteriosclerotic occlusive disease. At the outset it should be stressed that although the surgeon has a good deal to offer in the operative treatment of this lesion, his contribution to the care of these patients is not always surgical. Just as important is his decision as to which cases to operate upon and which cases not to operate upon. Also, he must know enough about the patient's general condition so that he does not overoperate.

The indications for surgery in the presence of occlusive disease in the major vessels of the legs include symptoms of intermittent claudication. There may be adequate collateral circulation at rest, or there may be a more severe ischemia with rest pain, or a threatened viability as evidenced by the appearance of ischemia and death of superficial tissue. As a rule, when claudication is present, the occlusive lesion is rather limited; and when there is rest pain or death of tissue, the lesion may be more diffuse and may be a combination of a number of occlusions from the aortoiliac area to the more distal vessels.

SELECTION OF PATIENTS FOR SURGERY

There is no need for elaborate instrumentation for measuring distal pulses. The simple expedient of feeling for pulses in proper places is a highly useful maneuver. The oscillometer is useful for measuring the amplitude of pulses, particularly in a patient who is obese or in whom it is difficult otherwise to palpate the arteries.

When occlusive symptoms come on slowly, there are many things a physician can do which do not involve surgery. These include the care, hygiene and protection of the limbs. A person who is limited in his walking distance, can be taught to take shorter steps and to walk more slowly. Such maneuvers will often increase the claudication distance and convert an incapacitated individual into a useful, wage-earning person. Supportive care during this period has been subject to a great deal of controversy. We have learned to place very little faith in the short-acting vasodilator medications which are on the market today. However, the short-term dilatation afforded by these medications may have some psychological value, and I must confess that I do use them now and then for some patients.

I think it is a mistake for every physician to consider himself capable of doing arteriograms and aortograms. These are specialized procedures which carry with them a certain amount of risk, and therefore should be done only in institutions with specialized personnel to carry them out. Once the patient is referred for possible surgical management, it is the surgeon's responsibility to evaluate the patient in terms of his overall general condition before considering the possibility of surgery. Arteriographic visualization of the blood vessels is unquestionably the most precise way of defining the pathologic anatomy preoperatively. However, these procedures are not to be done indiscriminately, since in many instances surgery can be undertaken either without angiography, or the combined procedures of vascular visualization and surgery can be done at the same time in the operating room.

Of course, there is no need to do a translumbar aortogram in the presence of pulsating femoral arteries bilaterally. A femoral arteriogram will certainly serve the purpose under these circumstances. Furthermore, there is no point in doing an arteriogram at all if there are popliteal pulses present in both limbs or if there are anterior and posterior tibial pulses present at both ankles. As a rule, if the occlusion is below the popliteal level, very little can be done for the patient surgically.

The average age of symptomatic patients with arteriosclerotic occlusive disease of the lower ex-

Dr. Laufman is a professor of surgery at the Northwestern University Medical School. He made this presentation at the Refresher Course of the Iowa Chapter of the American Academy of General Practice, in Iowa City during February, 1962.

tremities is about 60 years; 80 per cent are males; some 15 to 30 per cent are diabetic patients. Fifty to 60 per cent of these patients survive five years, whereas 60 to 75 per cent of the non-diabetics survive five years; that is, they escape death from any cause for this period of time. The low occlusions yield only fair late surgical results. A low occlusion is one in the area of the popliteal artery or below. High occlusions, that is to say those in the femoral artery or above, tend to yield better late surgical results. In patients with severe pain and/or gangrene due to high occlusion, we have found that with proper management, amputation can be prevented or delayed in at least 50 per cent of this group.

The selection of patients for direct surgery depends upon the rate of progression of the symptoms or the degree of disability of the patient. Patients who are selected for surgical therapy fall, for the most part, into three categories: 1) those with gangrene or severe rest pain; 2) those with progressive claudication or skin changes; and 3) those who consider themselves disabled by their claudication. I do not consider a man disabled who is able to carry on his usual functions as an executive, but who complains that he cannot play 18 holes of golf unless he uses a cart.

We find that some 32 per cent of the aortoiliac type of occlusions require surgical treatment. Of those at the femoral and popliteal levels, some 42 per cent are suitable for surgery, and of the combined types, only 26 per cent are suitable for surgical correction. The term "combined types" implies generalized disease, and it is only in the severely disabled patient that we feel surgery is indicated.

In aortoiliac occlusions, claudication of one type or another exists in 90 per cent, impotence in 40 per cent, and severe ischemia in only 10 per cent. Hypertension also exists in about 25 per cent of these patients, and the same appears to be true for visceral atherosclerosis.

RESULTS ACHIEVED BY SURGERY

What can one expect from surgery for aortoiliac occlusion? When we do a sympathectomy alone, there is little or no change in the claudication nor in the impotence; but ulcers on the legs do tend to heal, and the skin vascular supply is improved. Best results in direct arterial surgery are obtained in this group of patients. When either a vascular graft or endarterectomy is done as a reconstructive procedure, 70 to 90 per cent of patients with aortoiliac occlusions obtain an excellent result. There is said to be a 2 to 6 per cent operative mortality, but our mortality is less than half of this figure, probably because of extreme care in our selection of cases. There may be some recurrence of occlusion in these patients up to 2 to 5 years afterward. Many of these so-called recurrences are, in fact, femoral occlusions or occlusions elsewhere in the main stem arterial system of the leg which have progressed in this period of time to a symptomatic type of occlusion.

Distal occlusive disease occurs together with aortoiliac occlusion in some 25 to 30 per cent of patients. The surgical mortality is, in general, a little higher in this group because the surgery is more extensive. The percentage of immediate excellent and good results is somewhat less than it is in bifurcation disease alone. When combined occlusive lesions occur together, we find that some 50 to 70 per cent of patients obtain good results following reconstructive surgery. Some of the reasons for this fact are now understood as a result of more precise methods of diagnosis. For example, if one operates upon a patient for bifurcation or iliac artery disease, it is a good policy to do distal arteriograms on the operating table, if need be, at the time of the operation, in order to determine the patency of the distal stems. Many times it is possible to correct all of the occlusions at the same sitting. For example, it might be feasible to do an endarterectomy in the iliac artery and a bypass graft in the femoral artery.

SUBSTITUTE VESSELS

Homografts. In the past three or four years, we have abandoned the use of homografts because of the widely known fact that arteriosclerotic degeneration occurs quite readily in such grafts within a year or two after they have been implanted.

Plastic Prostheses. In vessels the size of the common iliac artery or larger, the plastic prostheses are generally considered satisfactory. These include the dacron or teflon fabric tubes. However, failures of suture lines in the abdominal aorta and rupture into the abdominal cavity and/or intestine have been reported. It has been intimated that these suture-line separations probably represent a failure of the graft to establish a sufficiently firm fibrous tissue bond with the host artery, and the fine silk sutures must carry the load of the arterial pressure. It has been found that fine silk deteriorates, losing up to 90 per cent of its strength within a year. For this reason, dacron sutures are being used in aortic anastomoses, especially when a prosthesis is inserted. The neointima which is laid down in a prosthetic device is known to undergo degeneration, with atherosclerotic changes and mural thrombi, in precisely the same way these phenomena occur to host vessels and in other forms of grafts, but at a somewhat slower rate. This observation is an interesting contribution to the knowledge of the etiology of atherosclerosis, insofar as it indicates that the degenerative change is influenced by the blood flowing past the lesion, and is not necessarily a tissue degeneration of the wall itself.

The grafting of vessels below the inguinal ligament, that is, of vessels smaller than the iliac artery, presents problems when plastic prostheses are used, although such prostheses still are used when they are the only kind available. The prob-

lem, apparently, arises from a tendency of the prostheses gradually to become encased in an inelastic scar tissue which leads to kinking and stiffening at the anastomoses, particularly when the flexion of joints demands a contraction and stretching of the graft. The development of the crimping principle did not do away with this tendency, since all plastic woven and knitted grafts tend to become stiff once they have been implanted for any period of time. Most vascular surgeons who have experienced this difficulty with many plastic prostheses implanted from the inguinal ligament down to the area of the popliteal artery, can only wonder at the high long term success rate still being reported by one group in this country.

Autogenous Vein Grafts. The saphenous vein is particularly well suited for end-to-end or bypass grafts in the lower extremities. There appears to be a much lower late occlusion rate—somewhere around 20 per cent after two years—when veins have been used for this purpose, as compared with a 40 to 50 per cent reocclusion rate in the same length of time when plastic prostheses have been used. The saphenous vein is removed at the time of the grafting operation, its branches are tied off, and it is inserted upside down, so that occlusion will not occur at the sites of its valves. Recently another operation has been reported, though we have not yet used it, in which the saphenous vein is left *in situ,* but disconnected at its top and bottom, and anastomosed to the side of the femoral artery above and below the occlusion. As the blood is allowed to flow through it, its branches are tied and its valves are excised, and an end-to-end anastomosis is made at each of the two or three places where such valves occur.

Thromboendarterectomy. This operation has been alternately condemned and condoned over a considerable period of time. After having been utilized many years ago by Leriche, Kunlin, and Dos Santos, it was revived in this country by Wylie, Barker and Cannon, and Warren. Many of the generalities which have been published about endarterectomy do not necessarily conform with the experiences of all surgeons. However, both the immediate and long-term results of thromboendarterectomy, like those of other reconstructive operations, are better in the larger vessels than in the smaller arteries. One generality which has been repeatedly stated is that thromboendarterectomy is more suited to short occlusions than it is to the more extensive type. However, in recent years, we have applied thromboendarterectomy to long occlusions, particularly in our limb-salvage operations, and we have achieved a gratifyingly high salvage rate. I shall say more about this in a moment. Early failures are commonly due to sluggish blood flow, either from distal disease or the presence of flaps or shreds allowed to remain on the lining of the vessel. Our success rate with endarterectomy has improved considerably since we began paying meticulous attention to these details. Furthermore, the use of the patch graft at the site of the arteriotomies and the careful tacking down of the remaining intima distal to the thromboendarterectomy have aided in the smooth flow of blood. We find reports in the literature that there is a 23 per cent thrombosis rate during the first year after initial success, with no subsequent closures up to a year and half afterward. In our own experience, we find the percentages somewhat comparable. Our early failure rate in what we call "ripe" lesions, that is, those which separate easily, is no more than 15 per cent. Our late rate of occlusion is somewhat higher than that reported, insofar as it is an additional 10 per cent occlusion up to four years. It is also possible that some of these occlusions occur at the site of injury from controlling clamps rather than in the endarterectomized segment itself. Long patches of vein sutured to an open endarterectomized artery is also a useful technic. Since Edwards described this method, we have utilized variations of it with success.

"DESPERATION" ENDARTERECTOMY FOR LIMB SALVAGE

"Desperation" endarterectomy is applied to patients who are in danger of losing a limb. The endarterectomy must be extensive because of the absence of distal lumina. In these patients, the surgery is undertaken with the full realization by both patient and surgeon that in the event of failure, amputation may be hastened to a slight extent. However, inasmuch as limbs in this category are either functionally useless or to some extent a hazard to health, the risk of limb-loss resulting from surgical failure is the understood price for a possible restoration. This concept, of course, cannot apply to patients who retain some measure of useful function of their limbs. In other words, the surgery is undertaken only if the patient is in sufficient distress to warrant a drastic approach. These limbs are afflicted with either chronic or progressive ischemic ulceration, severe rest pain, and/or gangrene of the toes or a portion of the foot.

In a series of some 40 of these patients, we have salvaged patency in 18 patients, or 45 per cent. It is to be understood that without the operation, these patients would either have had to undergo amputation or would have had to live under the influence of narcotics. It has now been almost three years since we started doing this procedure, and we have had a very low recurrence rate necessitating amputation. Of our 18 initial successes, only three have come to amputation since the initial success. In other words, these patients have been granted a two- or three-year respite during which they have been able to retain a limb which otherwise would have undergone amputation.

SYMPATHECTOMY

It is our policy to perform lumbar sympathectomy either as a preliminary or a concomitant procedure in all patients appearing to be amenable

to arterial reconstruction. Also, it is used as a definitive procedure when reconstruction appears improbable. In these patients, the sympathectomy often results in sufficient improvement to carry the patient for a considerable period of time and in many instances for the remainder of his life. If only limited or negligible improvement follows the sympathectomy, the patient may eventually reach the stage at which he may be considered a candidate for direct surgery or desperation endarterectomy. If, as occasionally occurs, we can predict only limited success from a sympathectomy, and if the patient's lesion is, in our judgment, amenable to more extensive surgery, the endarterectomy is done at the same sitting. When bypass procedures are done, the operations of sympathectomy and bypass are usually done at the same sitting. It is difficult to predict which patients will do better with sympathectomy alone. A large number of our patients who we believe would otherwise have had severe symptoms recover sufficiently to regain useful life after sympathectomy alone. Poorest results from sympathectomy occur in patients with small-vessel disease as it is encountered in diabetes. Best results apparently occur in patients who have already developed extensive collateralization, and in these instances the sympathectomy dilates the collateral vessels to an extent sufficient to give them functional, useful limbs. We do not believe that sympathectomy actually worsens the condition. The few instances in which amputation has been necessary after sympathectomy have been instances in which either the blood pressure had dropped sufficiently during the operation to precipitate arterial thrombosis, or in which a plaque had broken off from the aorta or iliac artery during a procedure and was carried distally as an embolic occlusion.

SUMMARY

I did not intend to present this material for the purpose of teaching the technic of arterial surgery to you. I am presenting it for only one purpose, that is to inform you of what can be done and to warn that, on the one hand, success cannot be obtained in every case, and yet, on the other, that there is a gratifying precentage of patients who can obtain relief from surgery.

One of the most important aspects of treatment of peripheral arterial disease is still the conservative care that the family physician can give to the patient with occlusive arterial disease of the lower extremities. In the presence of good care—and this includes management of other infirmities, such as diabetes, hypertension, heart disease, etc—the progress of the occlusive lesion can often be retarded or arrested. If it cannot be stopped and if symptoms progess, then something specific can usually be done by the surgeon.

As I have indicated, I do not believe in subjecting every patient with evidence of occlusive disease to aortograms or arteriograms or other involved diagnostic procedures. Provided a careful protocol is kept of meticulous physical examination, and provided the patient is subjected to conscientious, devoted care, it is surprising how much improvement one can obtain with conservative measures, and how gratifying the results can be with this type of management.

AMA and Chest Physicians Plan Joint Session in Chicago

The American Medical Association and the American College of Chest Physicians will hold a combined scientific session at McCormick Place, Chicago's new convention center, on Monday, June 25. This will be the closing day of the Chest Physicians' five-day meeting which will have its headquarters at the Morrison Hotel in Chicago. Also, it will be the opening day of the American Medical Association's annual meeting. Arthur M. Master, M.D., New York, chairman of the AMA's Section on Diseases of the Chest, will deliver the opening address at the joint meeting. His topic will be "Fads and Public Opinion in Heart Disease."

The program will include a symposium on "Results of Surgical Treatment of Acquired Cardiovascular Disease" with Drs. Frank Gerbode, San Francisco; Donald Effler, Cleveland; Dwight E. Harken, Boston; E. Stanley Crawford, Houston; and Ralph A. Deterling, Jr., Boston. A second symposium on "Special Contributions in Chest Diseases" will feature as participants Drs. Theodore H. Noehren, Buffalo; Oscar H. Friedman, Stanley M. Blaugrund and Louis E. Siltzbach, New York; Morris Wilburne and Josh Fields, Los Angeles.

There will also be six round table luncheon discussions on various types of emergencies encountered in dealing with diseases of the chest. Moderators will be Drs. William F. Miller, Dallas; Eliot Corday, Los Angeles; Irving Mack, Chicago; Frederick H. Taylor, Charlotte, North Carolina; Peter Safar, Pittsburgh; and Roy F. Goddard, Albuquerque.

The AMA's Sections on Anesthesiology, Pathology, and Physiology will join with the Chest Physicians for the afternoon section of the meeting to conduct a symposium on "Inhalation Therapy." Robert D. Dripps, M.D., Philadelphia, will moderate.

The always popular Fireside Conferences, long a feature of the Chest Physicians meetings, will again be part of the joint meeting with AMA. These will be held at the Morrison Hotel on Monday night, June 25. Among the topics to be included in the thirty round table discussion sessions are: Bronchial Carcinoma, Allergic Bronchitis and Allergic Pneumonitis, Screening Tests for Emphysema, Indications for Cardiac Surgery in the First Year of Life, Impending Myocardial Infarction, Esophageal Problem Cases, and The Smoking Controversy.

Experience With Metronidazole, A New Trichomonacide

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Trichomonas vaginalis generally is regarded as the most important etiologic factor in leukorrhea. The high incidence of this infection in the United States is indicated by the estimate that one of every five women has trichomoniasis.[1] The wide variety of therapeutic programs for treatment of trichomoniasis may reflect the difficulty currently encountered in controlling this infection. If this assumption is correct, it is obvious that a simple form of treatment that carries an excellent assurance of success will be welcome and is needed.

The well-known English surgeon Stanley Way, in speaking of new operations for cure of stress incontinence, once remarked that the procedures of which he spoke all have one thing in common—namely, that their originators all claimed good results. Similar claims for methods of treating trichomoniasis have been the rule and have clouded the approach to therapy. Treatments recommended have ranged from pantry-shelf items such as salt, sugar or vinegar, at one extreme, to psychotherapy at the other. In 1954 and again in 1956, Moore and Simpson[2, 3] recommended a method of treatment combining local measures and "superficial psychotherapy" based on the concept that trichomonal vaginitis is "essentially psychosomatic in nature"—that Trichomonas vaginalis is "incapable of producing symptoms except in a vaginal tract conditioned by emotional disturbances." As recently as 1959, McEwen[4] concluded, on the basis of his observations in 92 cases of trichomonal vaginitis, that "failure to cure a patient is not due to drug failure or reinfection by a sexual partner, but is more probably due to an inability to change chronic emotional disturbance."

Rational approach to definitive therapy has been advanced considerably by studies identifying the male as the principal source of reinfection, such as those reported by Perl *et al.*[5] in 1956. In Perl's initial studies, each woman having trichomoniasis was told to bring fresh urine from her husband. The urine was centrifuged immediately and the sediment examined by smear and culture from trichomonads. Of the 36 specimens examined, only one was positive (2.7 per cent). Questioning the dependability of this method, these investigators then examined semen instead of urine. The wife was asked to bring in a semen specimen masturbated directly into a sterile jar, and the whole seminal specimen was cultured. When semen specimens from husbands of 48 patients heavily infected with Trichomonas vaginalis were examined in this way, 28 (or 58 per cent) were found positive for trichomonads.

Investigation of the male by culturing the semen for Trichomonas vaginalis has been an important corollary to modern therapy of trichomoniasis. Unless one considers the coital partner and treats the infection in him, no cure in the female can be assured. It is likewise obvious that trichomoniasis is essentially a venereal disease, the usual method of infection being sexual contact. As with gonorrheal vulvovaginitis of childhood, it is freely conceded that occasional instances of trichomonal infection by means of nonsexual personal contact or by fomites may occur.

This paper is a preliminary report on our experience to date with a new trichomonacidal agent, metronidazole, available for investigation under the name "Flagyl."

PHARMACOLOGY

The descriptive formula of metronidazole is 1-(B-hydroxethyl)-2-methyl-5-nitroimidazole. It is a synthetic compound consisting of pale yellow crystals that are slightly soluble in water, alcohol and organic solvents. It is readily absorbed from the intestinal tract.

Pharmacologic studies[6] have demonstrated the potency and nontoxicity of Flagyl. Tests for *in vitro* potency (method of Sorel[7]) showed that a concentration of as little as one part Flagyl in 400,000 will destroy 99 per cent of a standard culture of Trichomonas vaginalis in 24 hours. Tests for *in vivo* potency in mice (method of Lynch *et al.*[8])

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Flagyl® brand of metronidazole was supplied for clinical investigation through the courtesy of the Department of Clinical Research of G. D. Searle & Co., Chicago.

showed that Flagyl given orally in a dosage representing only 1/200 of the maximal tolerated dose will give complete protection against Trichomonas vaginalis injected subcutaneously. Acute toxicity studies in mice (by stomach-tube administration of Flagyl in aqueous suspension) demonstrated an unusually high order of therapeutic safety. The LD_{50} by this method was found to be greater than 3,250 mg. per kilogram of body weight—a dose equivalent in the human to some 195,000 mg. The usual daily dose of Flagyl in humans is 500 mg. when only an oral or a vaginal course is given, and 1,000 mg., when oral and vaginal therapy are given concurrently. Results of subacute and chronic toxicity studies in rats and dogs have shown comparable ranges of therapeutic safety.

EARLY CLINICAL STUDIES

Early observations on the efficacy of Flagyl in the treatment of trichomoniasis conducted in France, England and Canada have now been fully corroborated in the United States. All of these studies indicate that the drug justifies a very high expectancy of cure, can be administered orally, ordinarily requires but 10 days of treatment, and is associated with a low incidence of non-serious side effects.[9-14]

Though Flagyl is not yet commercially marketed in the United States, at least 40 reports have appeared in the foreign medical literature describing clinical experiences with it. Flagyl has been subjected to clinical trials in this country since October, 1959. Preliminary opinions of investigators in this country have been characterized by most unusual enthusiasm. For instance, after treating 149 women and 99 men, Holmstrom[15] reported: "On the basis of our experience to date, we can say that Flagyl appears to be the most effective therapeutic agent ever introduced for the treatment of trichomonal vaginitis. The combination of vaginal suppositories for the female patient plus oral administration for the female and her sexual partner gives the best results. The drug is well tolerated and accepted by the patient. Side effects are minimal, temporary, and not troublesome."*

METHOD

In our study, diagnosis in each patient was confirmed by examination of a fresh saline suspension of the vaginal washings. No patient with a doubtful microscopic diagnosis was included in the study, nor was any patient treated on clinical findings alone. All patients with the diagnosis of trichomonal vaginitis in this study were consecutive and unselected. Diagnosis and follow-up of each patient were personally verified.

In each case the male partner (when one existed) was treated orally, the importance of this factor being carefully explained to the female partner. This study does not deal with the male aspect of the problem, although certain parallel studies in this regard are in progress.

In this study, 250 mg. tablets of Flagyl were used for oral administration, and 500 mg. vaginal inserts for local application. Identical 250 mg. tablets were administered orally, morning and night, for 10 consecutive days to the patient and to her consort. Simultaneously with this oral program, the patient was furnished with and instructed to introduce a 500 mg. vaginal insert nightly on retiring. Vaginal douching was discouraged during the period of therapy, but marital relations were sanctioned. Managements of pregnant and nonpregnant patients were identical.

Re-examination, including saline suspension of the vaginal secretion, was carried out in each case approximately 10 days following completion of therapy, and when feasible at monthly intervals thereafter. At least one monthly follow-up examination has now been made for each case.

RESULTS

Our study is still in progress and this report is of a preliminary nature. At this date, records of 55 patients treated and of 47 male consorts given concurrent oral therapy are available for analysis. The shortest follow-up time is one month; the longest is 11 months.

In 165 follow-up examinations including microscopic examination of the vaginal secretion, there has been 100 per cent freedom from trichomonads. Concurrent abatement of symptoms reasonably associated with this type of vaginitis has been uniform and consistent with the disappearance of the organisms from the vaginal secretion.

No instance of microscopic recurrence or reinfection has been noted in any patient to the present time. Six of the 55 patients were treated in various stages of pregnancy, and five of these have been re-examined on one or more occasions in the postpartum period.

In the entire group, the only side effect was a single instance of a mild erythematous eruption on both lower extremities. This was not sufficiently severe to warrant interruption of therapy, and subsided spontaneously after completion of therapy. Gastrointestinal disturbances did not occur in any patient in this series.

Post-therapy white blood cell counts have been studied in 10 patients, and no aberrations have been detected. Additional studies in this regard are in progress.

In our opinion, our clinical success has been completely gratifying.

* After treating some 600 patients, Holmstrom has concluded that "oral administration of Flagyl to both sexual partners appears to be the most effective method yet developed for eradicating Trichomonas vaginalis." (From "Trichomonal vaginitis treated systemically: New trichomonacidal agent for oral and topical administration," to be published.)

SUMMARY

A new trichomonacide, metronidazole (Flagyl) has been administered concurrently to 55 female patients with microscopically-confirmed trichomonal vaginitis and to 47 male consorts. Both partners took the drug orally for 10 days. In addition, the female patients used vaginal inserts nightly during the period of oral therapy. All patients have now been followed for at least 1 month, and some for as long as 11 months.

Clinical remission of symptoms has paralleled microscopic disappearance of trichomonads in all cases.

REFERENCES

1. Kuder, K.: Vaginal infections. J. Amer. Med. Wom. Ass., **5**:173-179, (May) 1950.
2. Moore, S. F., Jr., and Simpson, J. W.: Emotional component in Trichomonas vaginitis. Amer. J. Obst. Gynec., **68**:974-980, (Oct.) 1954.
3. Moore, S. F., Jr., and Simpson, J. W.: Trichomonal vaginitis: Emotionally conditioned symptom. Southern Med. J., **49**:1495-1501, (Dec.) 1956.
4. McEwen, D. C.: Common factors in Trichomonas vaginitis (Proceedings of the First Canadian Symposium on Non-Gonococcal Urethritis and Human Trichomoniasis, Montreal, 1959). Gynaecologia, **149**(Suppl.):63-69, 1960.
5. Perl, G., Guttmacher, A. F., and Raggazoni, H.: Male and female trichomoniasis: Diagnosis and oral treatment. Obstet. Gynec. (NY), **7**:128-136, (Feb.) 1956.
6. Unpublished data, Division of Biological Research, G. D. Searle & Co.
7. Sorel, C.: Trois techniques de recherche du "Trichomonas vaginalis"; leurs valeurs comparées. Presse Med., **62**:602-604, (Apr. 21) 1954.
8. Lynch, J. E., Holley, E. C., and Margison, J. E.: Studies on use of mouse as laboratory animal for evaluation of antitrichomonal agents; action of 21 agents. Antibiot. Chemother. (Wash.), **5**:508-514, (Sept.) 1955.
9. Durel, P., Roiron, V., Siboulet, A., and Borel, L. J.: Systemic treatment of human trichomoniasis with derivative of nitro-imidazole, 8823 R.P. Brit. J. Vener. Dis., **36**:21-26, (Mar.) 1960.
10. Fortier, L.: Traitement de la trichomonase chez la femme par un nouveau dérivé de l'imidazole (Proceedings of the First Canadian Symposium on Non-Gonococcal Urethritis and Human Trichomoniasis, Montreal, 1959). Gynaecologia, **149**(Suppl.):158-164, 1960.
11. Medical Society for the Study of Venereal Diseases: Systemic treatment of Trichomonas infestation. Lancet, **1**:1226-1227, (June 4) 1960.
12. Robinson, S. C.: Observations on vaginal trichomoniasis. I. In pregnancy. Canad. Med. Ass. J., **84**:948-949, (Apr. 29) 1961.
13. Sylvestre, L., and Gallai, Z.: La trichomonase urogénitale masculine et féminine. Un. Med. Canada, **89**:735-741, (June) 1960.
14. Watt, L., and Jennison, R. F: Clinical evaluation of metronidazole: new systemic trichomonacide. Brit. Med. J., **2**:902-905, (Sept. 24) 1960.
15. Holmstrom, E. G.: Investigator's clinical report, August 11, 1960.

Isolation of Histoplasma capsulatum, Allescheria boydii and Microsporum gypseum From Iowa Soil

In an Attempt to Determine the Probable Point Source Of a Case of Histoplasmosis

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THE ETIOLOGIC AGENT of histoplasmosis has been known since 1932,[2, 10, 11] but only since the studies of Palmer[17] and Christie and Peterson,[1] in 1945, has Histoplasma capsulatum been recognized as a frequent infectious agent for man. For many years, the few reported cases of histoplasmosis were usually recognized on postmortem examination. Thus investigators were led to believe that the infection rarely occurred, but that when it did take place it was invariably fatal. We are now aware that histoplasmosis occurs commonly in a benign form that usually results only in positive skin sensitivity to histoplasmin and residual calcification at the primary focus of infection.

During the past half-century, a number of recognized pathogenic fungi have been isolated from various natural sites. They have been shown to be present in decaying vegetative material, and in domestic and wild animals, and some have been shown to exhibit a saprophytic existence in soil.[4] It has been established that fungus infections of the systemic type are not generally transmitted from man to man or from animal to man. However, since the infectious organisms may occur as saprophytes either on decaying vegetative matter or in soil, it is not difficult to visualize how spores from the organisms may enter the body either through inhalation of contaminated air or by accidental implantation during a puncture wound of the skin.

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Further epidemiologic considerations of mycotic infections will be limited to histoplasmosis, since in this particular study we are interested in a case of histoplasmosis that occurred in a six-month-old Iowa infant. Furcolow[7] has recently published an excellent study on the epidemiology of histoplasmosis in which he points out the possible correlation of histoplasmin sensitivity with certain climatic conditions. He was able to show that areas of high histoplasmin sensitivity generally are in regions where the average summer temperatures range from 70 to 80°F., and the average annual precipitation varies from 35 to 50 in. Presumably those conditions are most suitable for the successful existence of H. capsulatum in nature.

The incidence of histoplasmosis is determined by the exposure of susceptible individuals to the organisms that occur as saprophytes in nature. H. capsulatum was first isolated from soil by Emmons[3] in 1949. Subsequently, the organism has been isolated from a number of different sites throughout the world.[19] Even though the organism has been isolated repeatedly from a large number of wild and domestic animals,[6, 16] Emmons does not believe that they are responsible for the endemicity of the mycosis. Rather, he thinks that in certain endemic areas the organism exists as a part of the saprophytic soil microflora and that both man and animals are infected from that source.

In a geographical mapping of the histoplasmin sensitivity of human beings in the United States,[14] it was found that the percentage of reactors in Iowa ranged from 70 per cent positive reactors along the southern border of the state to 2 per cent in the northern third of the state. Other studies have shown that infections due to H. capsulatum probably occur as a result of a susceptible individual's coming into close contact with a focus of fungus growth in nature.[9] In view of the high histoplasmin-reaction rate, it must be assumed that a fairly large number of potential foci of infection exist in Iowa. Thirty-eight cases of histoplasmosis in human beings were reported in Iowa in 1961.[12] Our report is concerned with data obtained as a result of epidemiologic and laboratory follow-up studies on one of the cases. The disease occurred in a six-month-old white female who was admitted to the State University of Iowa General Hospital on January 15, 1961, manifesting primarily a profound anemia, hepatosplenomegaly, mild diarrhea, vomiting and fever. Requests for isolation of fungi from this patient were first made after the surgical removal of the spleen. H. capsulatum was isolated from the spleen, and subsequently from the bone marrow and blood.

A VISIT TO THE EPIDEMIOLOGIC SITE

A visit was made to the residence of the patient, extensive questioning of the family was conducted, and appropriate soil specimens were obtained for cultural studies. The following pertinent information was obtained.

L. M. W. (SUI 61-765) was an only child who resided, following her birth on July 10, 1960, on a small southeastern Iowa farm with her mother and father. The parents had moved there in February, 1960. The clinical history of the patient was essentially negative up to the onset of the illness, on approximately December 25, 1960. The farm residence consisted of a four-room, one-story structure with no basement. A well on the premises provided the water supply, and the toilet facilities were out of doors. In addition to the house, there were several smaller buildings, snow fence and corncribs on the farm. The grounds were sodden, and numerous areas of poor drainage were in evidence.

The farm animals included four milk cows, three calves, six sows and 16 feeder pigs. These animals shared the same farm lot and pasture area. No dogs, cats or fowl had been housed on the farm since its purchase in February, 1960. A sizeable rat and mouse population was in evidence. Prior to its use as a hog house, one of the farm buildings had been used to house chickens. That building had been cleaned in May, 1960, and the litter had been discarded on the ground near the building.

The patient's environmental contacts during the probable exposure period had been limited to the farm home, the farm of her paternal grandparents and the farms of a few neighbors. She had been outdoors occasionally at the farm home. Exposure potential at the other premises was limited to the insides of houses and to the brief outside exposure involved when she was carried to and from automobile transport.

MATERIALS AND METHODS

The soil samples obtained on the premises consisted of the following:

1. Soil and debris from the inside and outside of a small doghouse near a clothesline where the child had been with her mother on several occasions
2. Ledge dust, old sparrow feces, etc., from an old chicken house now used for the hog house
3. Soil sample from inside the old chicken house (No. 2, above)
4. Soil and manure sample from the hog yard where most of the chicken manure from the May 19, 1960, cleaning had been scattered
5. Composite taken from inside of the tractor shed-barn combination (Sample consisted of soil, old hay and manure)
6. Moldy or damp hay and soil from the old hay shed, and soil from inside near the edge of the same building
7. Soil and debris from the edge of the corncrib and an old, rotten lumber pile
8. Soil from the outside edge of the hay shed described in No. 6, above
9. Soil and debris from inside of the washroom and milk-separator room, approximately 15 ft. north of the house

10. Composite sample of house dust from the tops of door ledges, etc.

In an attempt to isolate pathogenic fungi from specimens obtained at the suspected focus of infection, the method used was essentially that of Emmons,[5] with slight modifications. Specimens were collected in 100 ml. wide-mouth, screw-cap bottles which were kept tightly closed except when samples were removed. The specimens were stored at room temperature. Because insufficient material was available, specimens 9 and 10 were combined, and allowances were made for proportionate volumes throughout the following procedure.

Approximately 10 ml. of each specimen was transferred to a large test tube, and 25 ml. of physiological saline was added. A rubber stopper was inserted in the tube, the mixture was shaken vigorously for five seconds, and then it was allowed to sediment. After it had stood for 15 minutes, 4 ml. of the uppermost supernate was pipetted into another tube containing 1 ml. of antibiotic solution to provide a final concentration of 2 mg. streptomycin and 5 mg. penicillin per milliliter. Each of four albino mice was injected intraperitoneally with 1 ml. of the mixture and held for four weeks. The liver and spleen of each mouse was then removed for culture onto Sabouraud's slants, mycosel slants and blood agar plates. Duplicate sets of media were inoculated for incubation at 37° and 25°C. All media were held for one month before being discarded as negative.

Besides the attempt to isolate pathogenic fungi by selective infection of a susceptible experimental animal, attempts were also made to isolate the organisms by direct inoculation onto a selective medium. Mycosel agar plates were streaked with varying amounts of the soil suspension supernates and incubated at 25°C. Those plates that were not overgrown with saprophytic fungi were held for up to one month before being discarded as negative.

RESULTS

From the eight individual and one combined specimens examined, three different pathogenic fungi were isolated: Histoplasma capsulatum, Allescheria boydii, and Microsporum gypseum. The distribution of organisms in the individual soil samples and the number of infected animals which were found in each experimental group are shown in Table 1.

All attempts to isolate pathogenic fungi directly on mycosel agar from these soil suspensions have been unsuccessful. After specimen No. 1 had been shown to contain H. capsulatum and M. gypseum, repeated attempts to isolate these organisms by the direct plating method on mycosel agar were likewise unsuccessful.

DISCUSSION

Most people are not aware that the first successful isolation of H. capsulatum from a case of histoplasmosis was achieved at the State University of Iowa College of Medicine in 1932 by Dr. G. H. Hansmann and Dr. J. R. Schenken.[10, 11] Their investigations conclusively proved that the causative organism was a diphasic fungus. Together with Dr. George W. Martin, of the Department of Botany, they classified the organism in the genus Sepedonium.[15] Even though Hansmann and Schenken proved that their organism was a fungus and successfully fulfilled Koch's postulates, their work has been overshadowed by that of DeMonbreun,[2] which is somewhat more complete.

It has been shown previously that H. capsulatum can be isolated from Iowa soil.[8] This study reemphasizes the fact that this organism may be a somewhat common member of the saprophytic soil flora in certain specific locations endemic for histoplasmosis. This disease has been recognized as an important frequent infection of man only since 1945, yet it is currently estimated that more than 30,000,000 people are infected with it in the United States.[19]

Silverman *et al.*[18] suggest that histoplasmosis may constitute the most common cause of "fever of undetermined origin" in childhood in the endemic areas of the United States. The primary pulmonary form of the disease must be differentiated from the common cold, influenza and bronchitis. The disseminated form must be differentiated from neoplastic disease, leukemia, Hodgkin's disease, tuberculosis, syphilis, leishmaniasis and the other deep mycoses.[13] Since about two-thirds of Iowa is endemic for histoplasmosis, it is not un-

TABLE 1

ISOLATION OF PATHOGENIC FUNGI FROM MICE INJECTED WITH SOIL SUSPENSIONS

Soil Specimen	Fungi Isolated		
	Histoplasma capsulatum	Allescheria boydii	Microsporum gypseum
1	2/4*	0/4	1/4
2	0/0**	0/0	0/0
3	0/3	3/3	0/3
4	0/4	0/4	0/4
5	0/3	0/3	0/3
6	0/3	0/3	0/3
7	0/3	0/3	0/3
8	0/2	0/2	0/2
9/10	0/3	0/3	0/3

* The number of animals from which the particular organism was cultured over the number of experimental animals that survived the 4-week incubation period.

** Where experimental groups were smaller than four animals, death occurred within 72 hours after the mice received the injection of soil suspension.

reasonable to assume that many cases of the disease go unrecognized simply as a result of its protean manifestations.

In this particular study, a saprophytic reservoir of H. capsulatum was discovered near the home of the patient. Moreover, it was noted that the child had been exposed on several occasions to the particular site from which the organism was isolated. Exposure to other potential environmental infection sites had been extremely limited, since the child was only six months of age.

Since the principal portal of entry for the fungus causing histoplasmosis is considered to be the respiratory tract, it is possible that the child may have inhaled airborne spores at any of a number of places during her lifetime. Therefore, the area associated with the unoccupied doghouse from which H. capsulatum was isolated can only be suggested as the probable point source of infection for this child.

It was also of interest that two other pathogenic fungi, A. boydii and M. gypseum, were isolated from the soil specimens examined in this study. Both of those organisms have previously been shown to have a saprophytic existence in soil.[4] In this study, the organisms were recovered by the mouse inoculation technic. Direct plating on mycosel agar was unrewarding. Since these organisms were not of particular interest in this study, specific selective isolation technics were not employed.

SUMMARY

Epidemiologic and cultural studies have suggested the probable point source of infection for a case of histoplasmosis that occurred in a six-month-old infant. In addition to Histoplasma capsulatum, two other pathogenic fungi, Allescheria boydii and Microsporum gypseum, were also isolated from soil specimens obtained at the farm on which the infant lived.

ACKNOWLEDGEMENTS

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REFERENCES

1. Christie, A., and Peterson, J. C.: Pulmonary calcification in negative reactors to tuberculin. Am. J. Pub. Health **35**:-1131-1147, (Nov.) 1945.

2. DeMonbreun, W. A.: Cultivation and cultural characteristics of Darling's Histoplasma capsulatum. Am. J. Trop. Med. **14**:93-125, (Mar.) 1934.

3. Emmons, C. W.: Isolation of Histoplasma capsulatum from soil. Pub. Health Rep. **64**:892-896, (July 15) 1949.

4. Emmons, C. W.: Natural occurrence in animals and soil of fungi which cause disease in man. Proceedings of Seventh International Botanical Congress. 1950, pp. 416-421.

5. Emmons, C. W.: Significance of saprophytism in epidemiology of mycoses. Tr. New York Acad. Sc. **17**:157-166, (Dec). 1954.

6. Emmons, C. W.: Histoplasmosis. Pub. Health Rep. **72**:-981-988, (Nov.) 1957.

7. Furcolow, M. L.: Recent studies on epidemiology of histoplasmosis. Ann. New York Acad. Sc. **72** (No.3):129-163, (Apr. 10) 1958.

8. Grayston, J. T., and Furcolow, M. L.: Occurrence of histoplasmosis in epidemics—epidemiological studies. Am. J. Pub. Health **43**:665-676, (June) 1953.

9. Grayston, J. T., Heeren, R. H., and Furcolow, M. L.: Geographic distribution of histoplasmin reactors among school age children within rural Iowa county. Am. J. Hyg. **62**:201-213, (Nov.) 1955.

10. Hansmann, G. H., and Schenken, J. R.: New disease caused by yeast-like organism. Science **77** (Suppl. 2002):8, (May 12) 1933.

11. Hansmann, G. H., and Schenken, J. R.: Unique infection in man caused by new yeast-like organism, pathogenic member of genus Sepedonium. Am. J. Path. **10**:731-738, (Nov.) 1934.

12. Heeren, R. H.: Personal communication. 1961.

13. Lewis, G. M., Hopper, M. E., Wilson, J. W., and Plunkett, O. A.: Introduction to medical mycology. Chicago, Year Book Publishers, 1958.

14. Manos, N. E., Ferebee, S. H., and Kerschbaum, W. F.: Geographic variation in prevalence of histoplasmin sensitivity. Dis. Chest **29**:649-668, (June) 1956.

15. Martin, G. W.: Personal communication. 1961.

16. Menges, R. W., Furcolow, M. L., and Hinton, A.: Role of animals in epidemiology of histoplasmosis. Am. J. Hyg. **59**:113-118, (Jan.) 1954.

17. Palmer, C. E.: Nontuberculous pulmonary calcification and sensitivity to histoplasmin. Pub. Health Rep. **60**:513-520, (May 11) 1945.

18. Silverman, F. N., Schwartz, J., Lahey, M. E., and Carson, R. P.: Histoplasmosis. Am. J. Med. **19**:410-459, (Sept.) 1955.

19. Sweany, H. C.: Histoplasmosis. Springfield, Ill., Charles C Thomas, 1959.

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An experimental preceptorship program to acquaint outstanding junior and senior medical students with the elements of general practice work in small communities will be sponsored in 1962 by the Sears-Roebuck Foundation in cooperation with the Student American Medical Association Foundation. This year's pilot program calls for locating eight medical students in communities which have successfully participated in the Foundation's Community Medical Assistance Program.

Scholarships of $500 each will be given to students who spend two consecutive months during the current year studying and working with the doctors in those communities. The townspeople will provide board and room. Afterward, the students will report their experiences in articles to be published in the NEW PHYSICIAN, the periodical issued by the Student AMA. The names of the recipients were announced at the SAMA convention in Washington, D. C., in May, but too late for inclusion here.

Since its inception in 1958, the S-R Foundation has helped 54 communities throughout the country secure the services of one or more physicians, and it currently is endeavoring to get doctors for 18 towns. In Iowa, S-R projects have been successful in several places, including Anthon, Cascade, Carson and Shelby, but the office buildings that the organization assisted townspeople in erecting at Farmington, Kimballton and Woodbine lack occupants, and either one or two doctors are being sought for the one under construction in Marcus.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 38-YEAR-OLD TEACHER was admitted to the hospital because of lung trouble, chills and fever, and diarrhea. The patient had had episodes of pneumonia at least once a year throughout his life. During the previous two years, he had had frequent respiratory-tract infections. He had always had digestive trouble, which he described as a rapid transit of food through his gastrointestinal tract. Sometimes food particles had appeared in the stool five hours after he ate the food. Three months before admission, the patient had given up teaching because of chills, fever, sweats and a cough productive of copious, purulent sputum. He had been admitted to Oakdale Tuberculosis Sanatorium. Studies for tuberculosis were negative. During his twenties he had had numerous operations on his sinuses. When he was 22 years of age, an appendectomy had been performed upon him.

Physical examination revealed a thin, chronically-ill, 38-year-old white man in moderate distress with coughing and dyspnea. His blood pressure was 130/75 mm. Hg, his pulse rate was 115 per minute, and his temperature was 102.2°F. His skin was warm and moist with sweat. His eyes and ears were normal. His teeth were in poor repair. His chest expanded fairly well, and the anteroposterior diameter was normal. There was dullness at the left lung base, and there were many fine crepitant rales at both bases. The patient was unable to expire rapidly. His heart was normal to examination. The abdomen was flat and soft, and the soft organs were not palpable.

The urinalysis was negative. The hemoglobin was 10.9 Gm., and the white blood cell count was 23,200/cu. mm., with 86 per cent segmented neutrophils, 3 per cent band neutrophils, 3 per cent eosinophils, 6 per cent lymphocytes and 2 per cent monocytes. The stool was yellow in color and watery in consistency. There was no blood in the stool, but it was described as containing some food particles. Pseudomonas aeruginosa was cultured from the sputum.

In the posteroanterior and lateral x-ray films of the chest, the heart and the great vessels were within normal limits. An increase in the bronchovascular markings was present in both lower lung fields, and some areas were suggestive of bronchiectasis. An area of pulmonary infiltration in the right lower lung field suggested pneumonitis. The electrocardiogram showed findings consistent with an old anteroseptal myocardial infarction.

The vital capacity was 1,550 ml. (40 per cent of predicted normal). The residual volume was 2,330 ml. (197 per cent of predicted normal). Severely uneven distribution of inspired air was present. The maximum breathing capacity was 42 L./min., the arterial oxygen saturation was 76 per cent, the maximum expiratory flow rate was 47 L./min., and the arterial P_{CO2} was 42 mm. Hg.

X-ray films of the sinuses showed chronic sinusitis involving the maxillary, frontal and ethmoid sinuses.

The sweat chloride content was 94 mEq./L., and on a second occasion was 77 mEq./L. The one-minute serum bilirubin was 0.2 mg./100 ml., and the 30-minute serum bilirubin was 1.0 mg./100 ml. A bromsulfalein test revealed 4 per cent retention of the dye after 45 minutes. A cephalin flocculation was 3+ at 24 hours and 4+ at 48 hours. The zinc flocculation was 21 units. The blood urea nitrogen was 7.0 mg./100 ml., and the creatinine was 1.0 mg./100 ml. The whole blood CO_2 content was 30 mEq./L., the sodium 134 mEq./L., the potassium 5.0 mEq./L., and the chlorides 99 mEq./L. The total serum protein was 6.5 Gm./100 ml., with an albumin of 1.9 Gm./100 ml., and a globulin of 4.6 Gm./100 ml. The serum cholesterol was 96 mg./100 ml. The alkaline phosphatase was 1.6 units.

The serum amylase was less than 50 units. The serum carotene level was 2 micrograms per 100 ml. Duodenal juices were tested for tryptic activity, and none was found.

During the first week after his admission, the patient was given a soft general diet and was allowed out of bed, given sedatives for sleep and chloramphenicol, 250 mg., four times daily. After one week, a saturated solution of potassium iodide,

10 drops four times a day, was started. On the tenth hospital day, the patient was still quite ill, and was coughing up large amounts of purulent sputum. Chloramphenicol was then discontinued, and Gantrisin, 1 Gm. every four hours, and aqueous penicillin, 2.5 million units every 12 hours, were started.

The patient continued to get worse. He had high fever. Much of the time he was drowsy and obtunded. His respiratory infection did not respond to therapy. On the twentieth hospital day, Polymixin B, 25 mg. intramuscularly every six hours, was started. On the twenty-eighth hospital day he developed severe abdominal distention. Continuous nasogastric suction was instituted. He continued to do poorly, and he died on the thirty-second hospital day.

SUMMARY OF CLINICAL DISCUSSION

Dr. George N. Bedell, Internal Medicine: The patient for discussion today is a 38-year-old school teacher who had had a chronic illness throughout most of his life. He entered this hospital with what appeared to be a severe respiratory infection. His illness was exceedingly difficult to control, and after about a month of hospitalization, he died.

The first speaker will be Mr. James Cole, who will discuss the case from the students' standpoint.

Mr. James Cole, junior ward clerk: The patient is a 38-year-old man who had had both respiratory infections and digestive trouble all of his life. The latter consisted of diarrhea and noticeable food particles in his stools. Initially, the respiratory-tract infections consisted of at least one episode of pneumonia every year, associated with severe chronic sinusitis. In the last two years of his life, chills, fever, sweating and a productive cough became so severe that he was forced to quit teaching school.

After reading the history and the results of laboratory work as they had been presented to us, we felt that his was a case of cystic fibrosis of the pancreas, and we believe that everything listed in the protocol can be explained on that basis.

The diarrhea was a manifestation of increased bulk resulting from a deficiency of pancreatic enzymes. There was no trypsin present in the duodenal juice, and though the protocol doesn't contain a record of a secretin test, we have been assured that one was done with the patient in an adequately stimulated state. We take this as an indication of decreased pancreatic function.

He also had a low serum carotene level, which is indicative of a malabsorption. We were unable to find out whether there was any odor to his stool. Both the serum chloride and sodium were decreased, and this particular disease has been listed as a cause of hyponatremia in children, especially during the summer months.

The patient had a reversed albumin/globulin ratio, and elevated cephalin and zinc flocculations along with a low serum cholesterol. We felt that all of these findings were consistent with malabsorption plus chronic infection. We did not find any evidence of liver disease, especially since the bromsulphalein, the one-minute bilirubin and the alkaline phosphatase levels were all normal.

The electrocardiogram was interpreted as consistent with an old anteroseptal myocardial infarction. Yet this man was 38 years old, had a serum cholesterol of 96 mg./100 ml., and had no history of a clinical myocardial infarction. Also, we understand, with right ventricular hypertrophy secondary to a chronic lung disease, the R wave may be absent in leads V1 and V2, thus leaving a Q wave which gives the picture of an old anteroseptal myocardial infarction.

A chest film was suggestive of bronchiectasis and pneumonitis, but we didn't think that it was really a great help. A pulmonary function test, however, revealed gross pulmonary involvement. The values as they were given are those of chronic emphysema. But we also note that his chest expanded fairly well, and that the anteroposterior diameter was not increased, which suggests something other than the common variety of emphysema. The values as they have been presented are similar to those that have been obtained in fibrocystic disease of the pancreas occurring in patients between 15 and 22 years of age.

Now we come to the sweat chloride determination. In reviewing the case, we thought that if we were going to make this diagnosis, we had first to show that the sweat chloride values were elevated in the adult, just as they would be elevated in a child, and secondly, that this disease might exist in a 38-year-old man. We went into some of the literature to substantiate these two points. Dr. Charlotte Anderson[1] has reported sweat chloride levels using the mecholyl method of determination in several different groups of people, and her values in normal adults are of particular interest here. In 20 adults, in whom there was no disease of any particular nature, as far as she could tell, the values ranged from 19 to 82 mEq./L., with an average of 52 mEq./L. Then she also determined the sweat chlorides on 42 parents who had children with fibrocystic disease, and found values ranging from 10 to 84 mEq./L., with an average of 54 mEq./L. If we accept those values, we have one determination of 94 mEq./L., which is definitely elevated, and a second of 77 mEq./L., which is on the upper border of normal.

As regards the possibility that the disease can occur in an individual as old as our patient, we found a case reported—again by Dr. Anderson—in a 1960 issue of LANCET.[2] A 44-year-old man, in whom Dr. Anderson felt that all the criteria necessary to the diagnosis were met, had a lifetime history of both bronchial infection and diarrhea. Two of his cousins had died at 13 and 2 years of

age, respectively, with bronchiectasis and pneumonia. In this man, the submaxillary glands were enlarged, the sweat chloride determinations were 85 mEq./L. and 71 mEq./L. There was no trypsin, amylase or lipase in the duodenal secretion, and a biopsy taken of the small bowel revealed numerous goblet cells that were swollen and contained large amounts of eosinophilic granular material. Pulmonary function studies done on that man produced results similar to those reported here and in children with fibrocystic disease. X-rays showed diffuse mild bronchiectasis. Since Dr. Anderson's patient survived, there was no autopsy confirmation.

We feel that the patient under consideration today died a respiratory death secondary to Pseudomonas pneumonia. Pseudomonas, along with Staphylococcus, are the organisms most commonly found in fibrocystic lungs. The terminal abdominal distention that was noted could have been due to any of a number of things, including bowel obstruction secondary to adhesions following appendectomy, or he could have had a perforated peptic ulcer, a lesion that is being reported with increasing frequency in association with some chronic lung diseases. In recent articles, authors are trying to show a marked increase in peptic ulcer associated with fibrocystic disease. The information in the protocol surely didn't give us anything to justify this diagnosis, but we felt that it was also consistent with acute gastric dilatation which is sometimes seen in terminal cardiorespiratory patients who are receiving nasal oxygen.

Another possibility that we thought had to be considered was chronic pancreatitis coexisting with some chronic suppurative lung disease. We had no history of alcoholism, gallbladder disease or abdominal pain. No clubbing of the fingers was noted in the protocol. The x-rays, although suggestive of bronchiectasis, surely aren't diagnostic, and we should have liked to see some bronchograms to substantiate clean-cut bronchiectasis as the cause of his respiratory trouble. Again, there were no skin tests or complement fixation tests done to suggest any chronic lung disease. We felt that there was insufficient evidence to justify a discussion of any of the other causes of steatorrhea. There was no radioactive fat absorption, and we felt that the pancreas, as indicated in the protocol, was the primary site.

The only other disease in which sweat chlorides are consistently elevated is untreated adrenal insufficiency. We didn't find any evidence for that. Elevated levels have also been reported in bronchiectasis, but some of the work that is now being reported raises a question as to whether these are really true bronchiectases, or whether they may not be cases of fibrocystic disease with manifestations primarily in the lung and minimal subclinical pancreatic involvement.

On this basis, then, we feel that this man had cystic fibrosis of the pancreas, with a terminal Pseudomonas pneumonia.

Dr. Paul M. Seebohm, Internal Medicine: Under discussion today is a man who presented with acute infection manifested by chills, a fever of 102°F. and leukocytosis. He gave a history of having had recurrent infections in the form of pneumonia once a year. This would suggest some predisposing condition within the lung that might account for recurrent infection, rather than a persistent chronic infection.

The indications of pulmonary involvement with infection were cough, purulent sputum, x-ray evidence of a pneumonic-like infiltrate, rales, a history of sinusitis, and x-ray evidence of sinusitis. Thus the respiratory tract certainly seemed to be the site of the infection. Besides having had recurrent and acute pulmonary infections, he had evidences of pulmonary dysfunction. The pulmonary function tests showed a decreased vital capacity, an increased residual volume, uneven distribution, decreased maximum breathing capacity and decreased expiratory flow rate. These findings are very suggestive of the changes usually seen with pulmonary emphysema.

On one determination, with the patient breathing room air, the oxygen saturation was 76 per cent. However, the P_{CO2} was within normal range —42 mm. Hg. At this time, I'd like to ask what the oxygen saturation was when the patient was breathing 100 per cent oxygen.

Dr. Bedell: The oxygen saturation was 100 per cent + 0.05 vol. per cent.

Dr. Seebohm: That would then be consistent with the changes we see with emphysema which are diffuse throughout the lung and represent an interference with ventilation. He did not have the most serious complication of emphysema, namely carbon dioxide retention.

I was interested in knowing the oxygen saturation with the patient breathing 100 per cent oxygen because with chronic lung infection and bronchiectasis it is not uncommon for parts of the lung to be no longer air-bearing and possibly to serve as vascular shunts, and one may have more marked oxygen unsaturation without CO_2 retention on the basis of a true vascular shunt through a diseased portion of the lung. Apparently this mechanism was not present in this patient, however.

At this juncture, I suppose one should consider all the usual causes for chronic lung disease. In emphysema with chronic bronchitis and recurrent pneumonia, we certainly see this picture. Our patient was a little young to have had primary emphysema for 38 years. Patients with bronchial asthma have recurrent bronchitis, sinusitis and infection. There was no evidence that this man ever had had asthma, so we must eliminate it. The electrocardiogram suggested that he had had a myocardial infarct at some time in the past, and this

would make one suspicious that he might have congestive failure. I think the absence of cardiac enlargement and peripheral edema would constitute evidence to the contrary, and certainly congestive failure could not account for the lifetime history, especially when there was no evidence of valvular or congenital heart disease.

So we are left with a condition such as bronchiectasis with recurrent pneumonia or some other predisposing condition within the lung. Chronic recurring infections could have led to the secondary emphysema and the resulting changes in pulmonary function. It was noted that the sputum was cultured and only Pseudomonas was found. I'd like to ask Dr. Gillies a specific question: What are the evidences of bronchiectasis as reported here in the protocol?

Dr. Carl L. Gillies, Radiology: I think the diagnosis of bronchiectasis was probably made from fright plus a little knowledge of the history. There was diffuse fibrosis visible in both lungs, on chest x-ray, and it didn't change during the period of observation. There was some diffuse pneumonitis, but there was no atelectasis such as sometimes accompanies long-standing bronchiectasis. We do not have a lung mapping to prove or disprove it. I think we were influenced by the patient's history as much as by the x-rays.

Dr. Seebohm: The man also had some kind of a gastrointestinal problem. He had bowel frequency all of his life. We find in the protocol that there was an absence of trypsin, and evidence of poor absorption in the form of a low carotene level. He also had a low cholesterol which I thought might be evidence of poor absorption. The only way I could fit it into the picture was to suggest that it was low because the patient was not absorbing it. Someone else may have a better explanation.

Mr. Cole and his colleagues were disturbed, though I am not, by the fact that the patient is supposed to have had a myocardial infarction at 38 years of age and when his cholesterol was less than 100. Such an occurrence seems to strike at the roots of some of our modern concepts.

Now the next question is whether there was or was not some hepatic involvement, and I concur with Mr. Cole and his group that we don't have any direct evidence of hepatic disease. Bilirubin, bromsulphalein and alkaline phosphatase were all normal. The protein tests, however, were abnormal. The albumin was down, suggesting general malnutrition. A cephalin flocculation was abnormal, suggesting some aberration of the globulin, and there was a slight increase in the globulin. The zinc flocculation was also positive. These all suggest abnormalities of the proteins. Whether these were the result of a systemic disorder or a liver involvement, I am unable to say. In the course of reading papers on the disease that it seems probable we are dealing with today, I got the impression that the liver is occasionally abnormal at autopsy in such cases. So whether the changes in the blood proteins were secondary to malnutrition or to liver disease, I am unable to say.

Now for the extraneous tests. The sweat chloride was elevated, and it has been pointed out that it is elevated under only two conditions. One is hypoadrenalism, and the other is cystic fibrosis of the pancreas. The possibility of primary hypoadrenalism is not very good here because of the duration of the chronic illness. One could contend, I suppose, that the patient had a chonic lung problem and was treated with steroids, and then that the medication was stopped before he came to the hospital and was given a sweat test. I doubt that such a series of events occurred, but it could have been a reason for a false positive, and one certainly should keep it in mind when doing sweat chlorides on all patients with chronic cough and chronic lung problems in an effort to find patients with cystic fibrosis.

The possibility that multiple diseases might have caused the patient's pulmonary and gastrointestinal disorders I think has to be considered, but not very seriously. My final impression was much the same as that of Mr. Cole and his group. The patient was an adult, but we are seeing this disorder in adults now. He had had pneumonia every year of his life, so I suspect that for at least the last 20 years he had been treated with some antibiotic, thus living longer than was possible for patients with this illness before the advent of the antibiotic era.

In conclusion, I think that we are dealing with a man with cystic fibrosis of the pancreas and secondary lung involvement. The only thing missing is the hemolytic Staphylococcus aureus in the sputum which is usually found in this disorder. Its absence may have been a consequence of energetic antibiotic therapy just prior to the collection of the sputum specimen.

The patient's final episode, I thought, was due to progression of the pneumonia and an acute gastric dilatation. From the information in the protocol, this was most likely, but I see now that we have a film of the abdomen. Dr. Gillies, would you interpret the x-rays?

Dr. Gillies: This is a film of the abdomen. It does not show distention of the stomach, but the small and large bowels are distended, giving the appearance of an ileus rather than of an obstruction.

Dr. Seebohm: I have some difficulty in accounting for this as anything other than possibly a peritonitis, which may have been either bloodborne or due to a local perforation of the bowel.

Dr. Robert Soper, Surgery: Was the patient ever treated with pancreatic extract, Decholin, Viokase, or similar drugs?

Dr. Bedell: I don't believe that he was. Dr. Clif-

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References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

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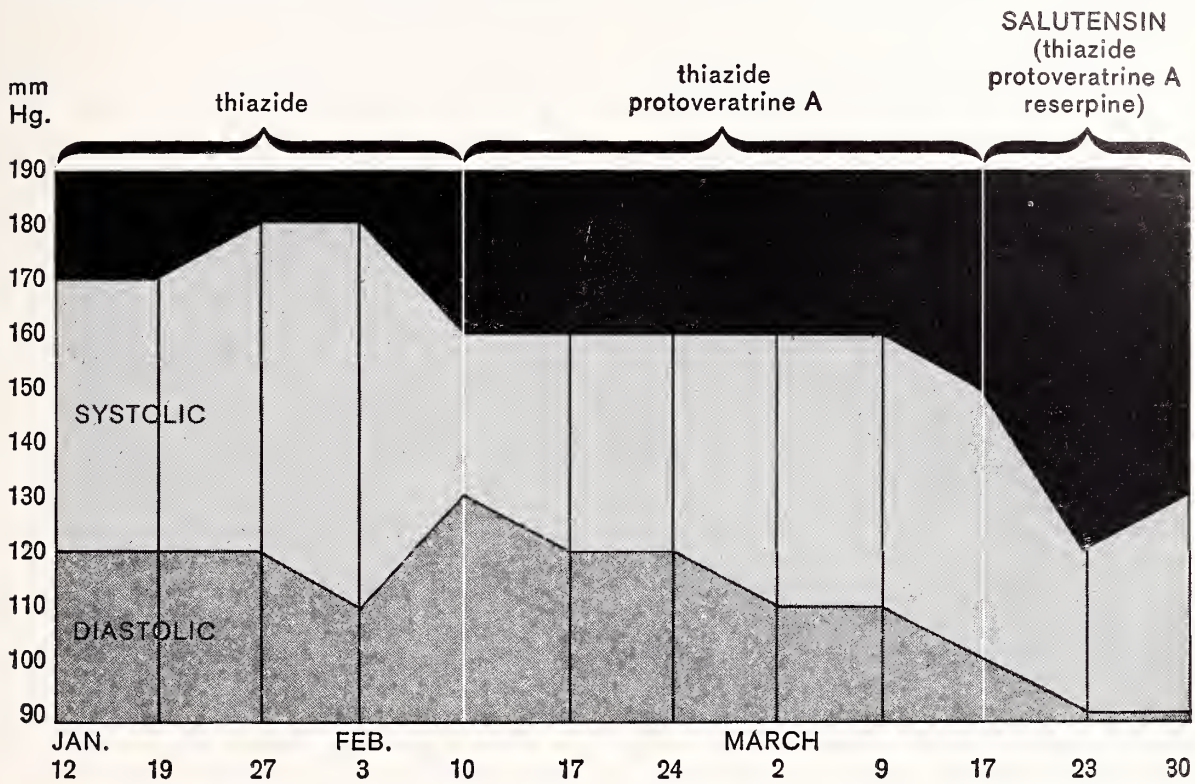
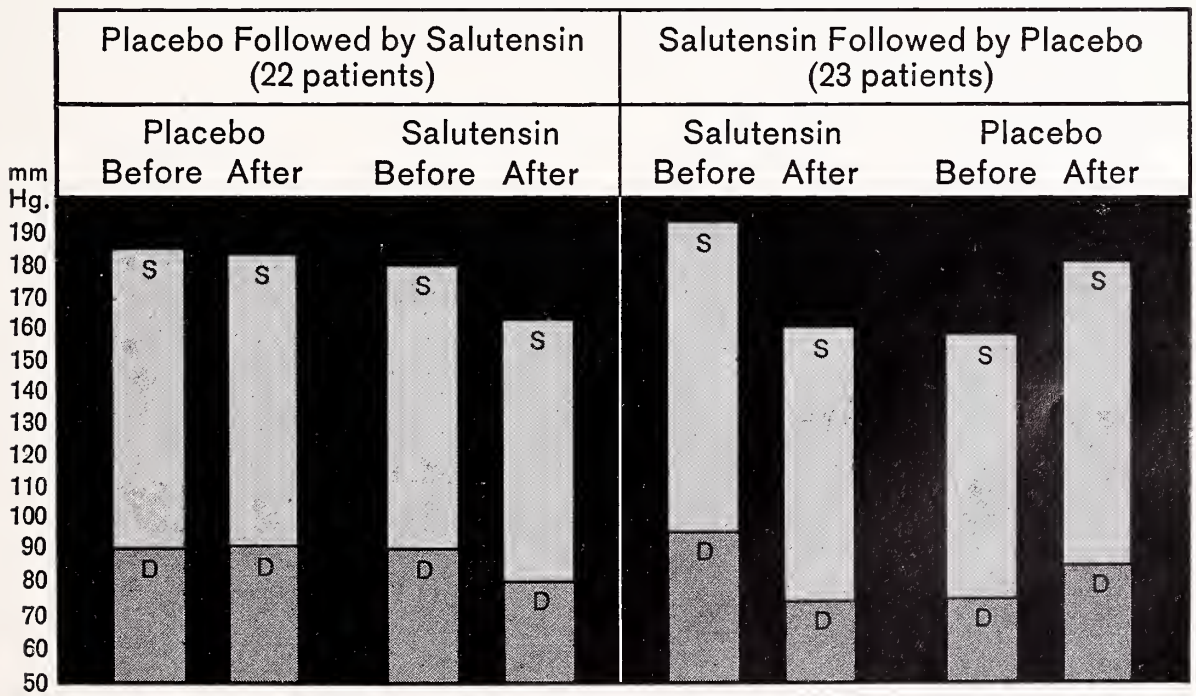
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

BRISTOL LABORATORIES/Div. of Bristol-Myers Co., Syracuse, N.Y.

ton, do you remember whether he had bile salt, pancreatic extract or similar drugs?

Dr. James Clifton, Internal Medicine: No, he had never been treated for this pancreatic disorder.

Student: We can assume, then, that this diagnosis had never been made before he came here.

Dr. Bedell: As you will remember from the protocol, he had been admitted to the Oakdale Hospital because he had a chronic lung infection and because there was considerable concern over the possibility of tuberculosis. He was worked up at Oakdale, and the clinical diagnosis of cystic fibrosis was made there. He was transferred to our hospital with the clinical diagnosis of cystic fibrosis of the pancreas with chronic lung infection, and here he was treated with many antibiotics to try to clear up his lung infection, but he did not respond.

Dr. Emory Warner, Pathology: I think I might start by pointing out one or two things that the patient did *not* have. He did not have atherosclerosis of the coronary arteries, and he did not have a myocardial infarct. At the time of autopsy, abdominal distention was rather inconspicuous. The last film was taken four days before his death, and perhaps the gastric suction was quite effective. There was mild ascites—350 ml.—and there was moderate distention of the small bowel.

Now, to come to what the patient *did* have. He did have cystic fibrosis of the pancreas, if you use the term as the name of a disease entity rather than as a means of describing the patient's pancreas. For practical purposes, there was no exocrine pancreas. However, he did not have a fibrotic pancreas, nor did he have a cystic pancreas. The pancreas, in yester-years, would have been said to exhibit "extreme adiposity." The organ was of essentially normal size, shape and location, but on gross inspection was almost entirely made up of adipose tissue. Normal islets were distributed throughout the fatty mass. The bulk of the structure was made up of fibroadipose tissue, with emphasis on the adipose tissue. Scarring was very inconspicuous. There was practically no cystic change.

The other site of significant disease was in the patient's lungs. He did not have appreciable bronchiectasis. There was emphysema of moderate degree, with patchy atelectasis. Pneumonia was present throughout all lobes as a patchy, multinodular lesion. Although the individual nodules were not large, they were numerous and resulted in extensive disease. There was a very active purulent bronchitis. In addition, there was considerable chronic bronchitis with chronic inflammatory infiltrate in the bronchial walls. Again I would like to stress that in spite of the extensive pul-

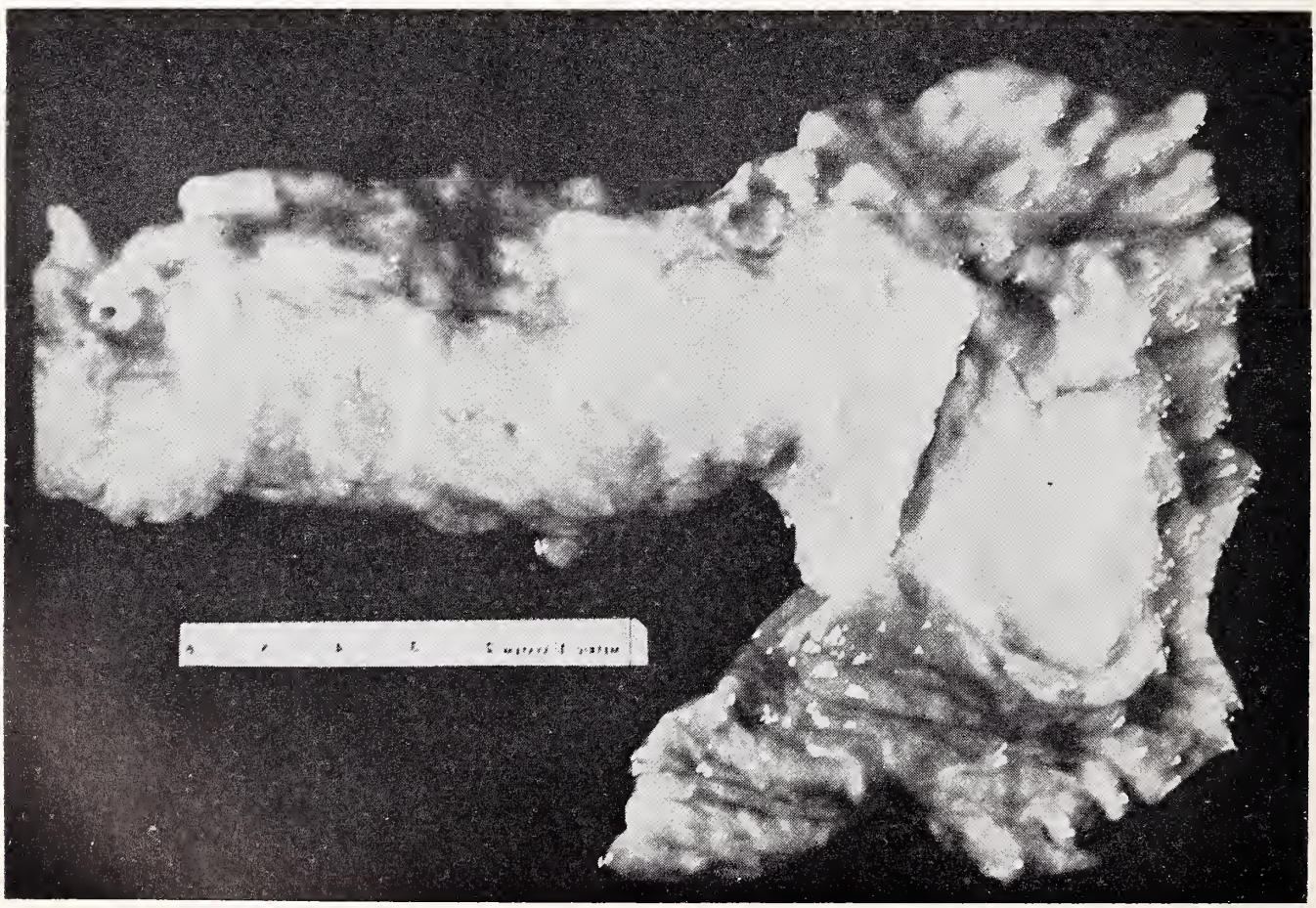


Figure 1. Gross photo of pancreas showing essentially normal size and shape, and absence of gross fibrocystic change.

monary disease, with chronic as well as acute bronchitis, there was very little bronchial dilatation. Patchy fibrosis with an old chronic pneumonitis was present, but this again was not extensive.

The pancreas was essentially normal in size and shape. It weighed 80 Gm., as compared with a normal average of perhaps 90-100 Gm.

His liver was small, weighing only 1,100 Gm., but the patient was not a large man. Microscopically, the liver showed a very mild fatty metamorphosis and slight periportal fibrosis. He certainly did not have a cirrhotic liver in the ordinary sense, nor was there evidence of mucoviscidosis involving the bile ducts.

The microscopic slides of pancreas were all similar. They showed adipose tissue in which there were numerous pancreatic islets. The adipose tissue was divided up by septa of fibrous connective tissue without appreciable inflammatory reaction. The islets were perhaps a little more numerous than normal, but when one considers that the pancreatic parenchyma of exocrine type was almost absent, it seems likely that the apparent increase in the number of islets was not real. There were a few foci microscopically in which residual degenerating pancreatic acinar tissue could be found. In these, there was some dilatation of a few of the very small ducts. An occasional larger duct had some mucoid material which appeared rather inspissated and which filled the lumen. This, however, was a very inconspicuous finding. The main pancreatic duct showed dilatation of the small ducts and mucous glands in its wall, but there was no true cyst formation.

There were multiple small foci of squamous metaplasia present in the bronchi. With the faulty absorption, vitamin-A deficiency might have been expected to occur in the patient. This, as well as chronic bronchitis, would have tended to cause squamous metaplasia.

What have we to support the diagnosis of cystic fibrosis in this case? Why might not this be a case in which the pancreas was destroyed by some virus infection, for example, with resultant pancreatic insufficiency leading to nutritional deficiency—malabsorption, if you will—and the rest of the story secondary to pancreatic destruction?

In favor of the diagnosis of cystic fibrosis, we have the positive sweat test, which is generally considered to be diagnostic. Also, there was some dilatation of mucous glands along the pancreatic duct, and some similar dilatation was present in Brunner's glands in the duodenum. The chronic lung disease, although rather non-specific, certainly fits with the diagnosis of cystic fibrosis. The

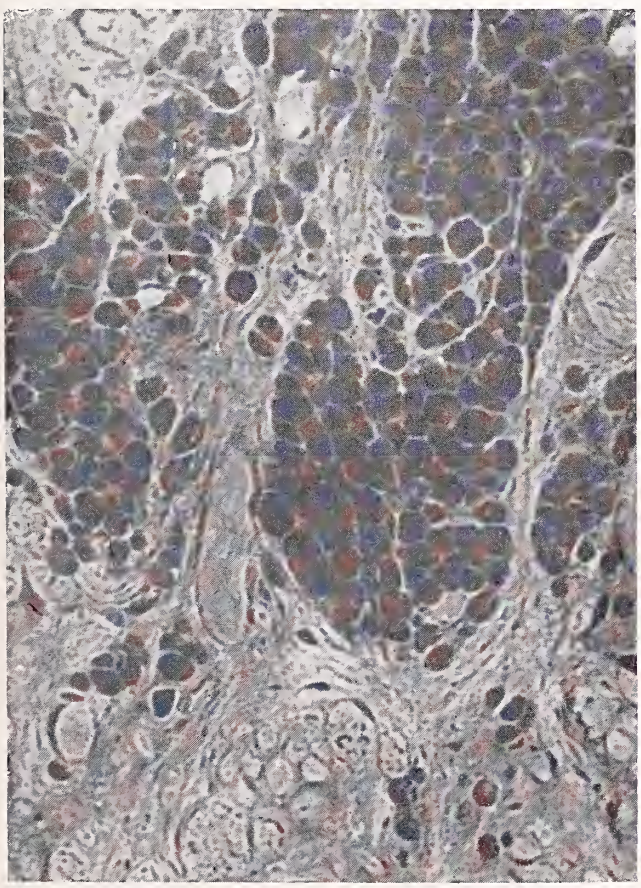


Figure 2. Typical section of pancreas showing numerous islets scattered in the fibroadipose tissue which replaced the pancreatic parenchyma.

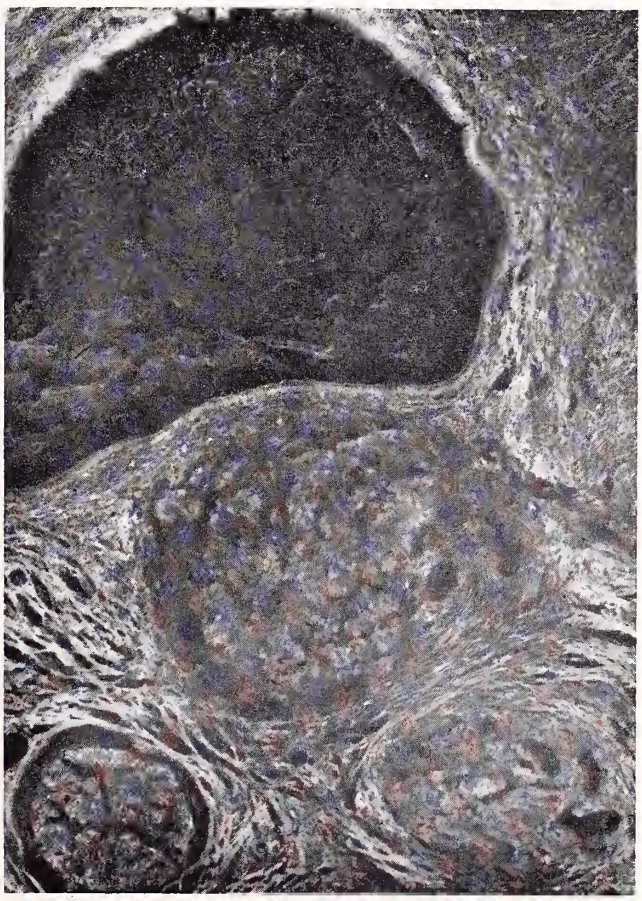


Figure 3. High-power view of one of the few areas in which remnants of exocrine pancreatic tissue were present. Note dilated small duct with mucoid content.

absence of bronchiectasis is in accord with cystic fibrosis, rather than against that diagnosis. Although neither cyst formation nor fibrosis was present to a significant degree in the pancreas, the pancreatic findings were not against the diagnosis of cystic fibrosis.

It is worth stressing that as cases of cystic fibrosis have been followed up into the teen-age period and into young adulthood, it has become evident that increasing adiposity of the pancreas is likely to occur. It is in the infant and the younger child that we see the classic changes of extensive fibroplasia and dilatation of the ducts. As time goes on, there is progressive ingrowth of adipose tissue, with replacement of the pancreatic exocrine tissue. Also, fibroplasia ceases, and the excess connective tissue is gradually replaced by adipose tissue. In the later stages, inflammatory reaction is minimal.

Thus, the pancreatic findings in this case—extensive adiposity, practically no inflammation and a virtual absence of exocrine tissue—do not rule out the diagnosis of cystic fibrosis. In fact, the findings are quite in accord with what one might expect in a patient who had survived to the age that this man had reached.

Mr. Steven Bauserman, junior ward clerk: Are we assume that this is an abnormal form of this disease having a hidden progression that allows people to live to the age of 40 years, rather than making them die in their teens, as one commonly expects?

Dr. Warner: I think we should expect to encounter relatively mild cases of most diseases. This is true even of such diseases as hemophilia. Though at first glance it would seem that the defect in hemophilia should be all or none, actually we find all degrees from very mild, unsuspected and undetected cases to the full-blown classic disease. It seems reasonable to expect a comparable range among the cases of fibrocystic disease.

To answer your question more specifically, I should say yes, I think this patient's case of fibrocystic disease was sufficiently mild to permit his survival into the antibiotic era, and then to allow his being carried for another decade or two by antibiotics.

Mr. Bauserman: So you think that in the future more cases will have been spared for considerable periods by antibiotics.

Dr. Warner: I think more patients with fibrocystic disease will reach adult life in the future. I think also that there have been more such patients in the past than we have recognized.

Dr. Seebohm: I'd like you to expound a little further on the mechanism by which the lung part of this picture develops. You mentioned vitamin-A deficiency. Did you see any glandular changes in the lung?

Dr. Warner: In my remark about vitamin-A deficiency, I was referring to the squamous metaplasia in the bronchi. With the malabsorption and the low blood carotene, we might have anticipated that he would have a vitamin-A deficiency. This is known to predispose to squamous metaplasia of bronchial epithelium. It was in that connection that I referred to vitamin-A deficiency.

In regard to the pathogenesis of the lung lesions, I think we don't have a very clear concept at the present time. One would have difficulty in maintaining that the complete explanation is mucoviscidosis, with sticky mucus that cannot be coughed up, thereby causing mechanical obstruction, a resulting infection and the subsequent chain of events. Bronchiectasis, typically, is inconspicuous. Were obstruction the major factor, we would expect much more bronchiectasis. The mucus is chemically—or at least histochemically—normal, according to some workers. Its stickiness is not beyond the stickiness we see with chronic bronchitis from other causes. Viscosity of mucus, which has been much stressed, may merely reflect water content rather than an unusual chemical structure. There is an extreme susceptibility to pulmonary infection in these patients, and this susceptibility may be the major factor rather than simple mechanical obstruction. Certainly it is difficult to see how abnormal mucus, as the basic genetic defect, can explain the abnormal salt content of the sweat.

Mr. Cole: What did the patient's adrenals look like?

Dr. Warner: Everything else was essentially normal. He had some atrophy of the testes, with aspermia.

Student: How about the salivary glands? Were they looked at?

Dr. Warner: The submaxillary gland was entirely normal. The sublingual gland was not taken, nor was the parotid gland, although a number of pieces of tissue from the parotid region were removed for section. Whether the parotid gland was atrophic or not, it is impossible to say. In Dr. Anderson's last article, salivary-gland changes were described in some detail. Apparently both parotid and submaxillary glands usually are normal in classic cases of this disease. The sublingual, however, is likely to show the disease. Unfortunately, the sublingual was not examined in this case.

Dr. Seebohm: I'd like to ask Dr. Clifton whether adults with the malabsorption syndromes have a high incidence of lung infection, and also whether it is usually found that their carotene blood values are low.

Dr. Clifton: Their carotene blood values are usually low, and as a group they do not tend to have chronic lung infections.

Student: Will someone comment on the low cholesterol value?

Dr. Clifton: Patients with long-standing malabsorption usually have low serum cholesterol.

Student: Are there any studies to show that the pancreatic enzymes affect the lung picture in any way?

Dr. Bedell: The administration of pancreatic enzymes has no particular effect on the lung. In other words, pancreatic enzymes usually help the patient symptomatically, but changes in absorption of digestive products do not alter the course of the disease as far as the lung is concerned.

Dr. Robert D. Gauchat, Pediatrics: I should like to comment on the nature of mucoid secretions of patients with cystic fibrosis. In the published transactions of the International Research Conference on Cystic Fibrosis, held in Washington, D. C., in 1959,[3] considerable information concerning the chemical and physical properties of these mucoid secretions is presented by leading investigators of this disease. Abnormalities in mucous secretions are most strikingly demonstrable in the pancreatic secretions obtained both from the duodenum and from the bronchi. Shwachman was the first to point out that duodenal juice is abnormally viscous in these patients, and measurement of this increased viscosity of duodenal fluid is employed at some medical centers, along with measurement of tryptic activity of the duodenal fluid, as a means of establishing the diagnosis of cystic fibrosis.

In 1957, Dische and di Sant'Agnese further demonstrated that there is a mucopolysaccharide in the duodenal fluid of the fibrocystic patient, which becomes denatured and loses its solubility in water when it is precipitated and which is not present in normal control subjects. Interestingly enough, this abnormal mucopolysaccharide is present in the duodenal fluids of most patients with cystic fibrosis, even though pancreatic tryptic activity may not yet have been lost by progressive pancreatic fibrosis. More recently, Dische has found abnormalities in the sialic acid and fucose content of this peculiar mucopolysaccharide.

As regards the pulmonary secretions, they are more viscid than normal, and they also appear to differ from the secretions produced by patients with bronchiectasis. The bronchial secretions of the fibrocystic patients contain more nucleoprotein (DNA) than do either normal or bronchiectatic secretions, and are very resistant to breakdown by various proteolytic enzymes. The only enzyme which produces a marked decrease in the viscosity of fibrocystic bronchial mucus is pancreatic dornase, and this fact suggests that the nucleoproteins constitute an important contribution to the overall viscosity of these secretions.

Several years ago, Dr. Warner, I attended all postmortem examinations of fibrocystic patients to collect bronchial contents so that Dr. Charles D. May and I might study them. We hoped to obtain enough bronchial mucus from those patients to permit a search for ways of reducing the viscosity of the mucus by enzymatic means, so that patients could cough out their secretions more easily. Using a 50 ml. syringe—the largest needle I could find—and using as much suction as I could exert with that apparatus, I was unable to withdraw more than a very small amount of that bronchial mucus because of its extreme stickiness and its tenacious attachment to the bronchial lining.

Dr. Seebohm has commented that the presence of Pseudomonas organisms in this man's bronchial tree is an unusual finding. In recent years, with the use of more and more potent antibiotics to combat the characteristic staphylococcal infection seen in patients with cystic fibrosis, we have come to recognize Pseudomonas organisms as second and even more serious invaders of the lungs of these patients. Pseudomonas organisms adapt quickly to most chemotherapeutic agents, and are widely distributed both in external and internal human environments. They are therefore ideally equipped to settle down and grow when the more potent Staphylococci have been inhibited by antibiotic therapy. The characteristic stickiness or viscosity of its culture no doubt enhances its ability of the Pseudomonas to survive competitively in these sticky secretions.

Once the Pseudomonas has invaded and become established in the bronchi of a fibrocystic patient, it is extremely difficult to remove it by any form of chemotherapy, and the prognosis for the patient is grave. Nebulized antibiotics and postural drainage have proved ineffective as methods of combatting the Pseudomonas. At the present time, we are approaching this problem by preparing autogenous vaccines using the Pseudomonas cultured from the patient's sputum, and we are employing this vaccine in the old-fashioned, traditional way in an effort to stimulate antibody production against the Pseudomonas. In two cases, short-range improvement in pulmonary function has been observed, but more time must elapse before we can assess the value of this approach. In two other cases, I believe that we have eliminated the Pseudomonas by stopping all antibiotic therapy in order to allow the presumably more virulent Staphylococci to overgrow and eliminate the Pseudomonas organisms. This technic is obviously fraught with hazards, and needs to be done under close supervision within the hospital. We are always reluctant to hospitalize children with cystic fibrosis unless it becomes absolutely necessary, because of the possibility of their exposure to hospital strains of Staphylococci.

In my opinion, the case presented today is important because it reports one of the longest-surviving patients with cystic fibrosis for whom complete pathologic findings are known. Shwachman[4] has reported that only three patients from a series of 266 seen in Boston have survived beyond the age of 20 years, and that his oldest surviving fibro-

cystic patient is 35 years old. Among the 550 patients seen by Andersen and di Sant'Agnese in New York,[5] only 20 per cent survived beyond the age of 10 years, the oldest patient being 24 years of age.

It is interesting to speculate whether one factor contributing to our patient's long productive life may have been that he *escaped* from the continuous antibiotic therapy now employed traditionally in the management of cystic fibrosis!

For those who wish to extend their knowledge of cystic fibrosis as it presents itself in adolescents and young adults, I should recommend the editorial by di Sant'Agnese and Andersen published in the ANNALS OF INTERNAL MEDICINE for May, 1959,[6] in which they describe their experience with fibrocystic children beyond the age of 10 years and into adulthood. There is no doubt that cystic fibrosis can no longer be thought of as a purely pediatric disease.

STUDENTS' DIAGNOSES

Cystic fibrosis of the pancreas
Pseudomonas pneumonia

DR. SEEBOHM'S DIAGNOSES

Cystic fibrosis of the pancreas
Acute gastric dilatation
Pseudomonas pneumonia

CLINICAL DIAGNOSES

Cystic fibrosis of the pancreas
Pseudomonas pneumonia

ANATOMICAL DIAGNOSES

Fibrocystic disease of the pancreas
Bronchopneumonia, bilateral, severe
Pleural effusion, bilateral
Ascites, 350 ml.
Emaciation
Ecchymoses, hips and right leg
Splenomegaly, 320 Gm.
Dilation of right seminal vesicle.

REFERENCES

1. Anderson, C. M., and Freeman, M.: Simple method of sweat collection with analysis of electrolytes in patients with fibrocystic disease of pancreas, and their families. Med. J. Australia, **1**:419-422, (Mar. 29) 1958.

2. Marks, L., and Anderson, M.: Fibrocystic disease of pancreas in man aged 46. Lancet, **1**:365-367, (Feb. 13) 1960.

3. McIntosh, R., ed.: Research on Cystic Fibrosis. In: Transactions of the International Research Conference on Cystic Fibrosis, Washington, D. C., January 7-9, 1959. Baltimore, The French-Bray Printing Co., 1960.

4. Kulczycki, L. L., Mueller, H., and Shwachman, H.: Respiratory allergy in patients with cystic fibrosis. J.A.M.A., **175**:358-364, (Feb. 4) 1961.

5. di Sant'Agnese, P. A., and Vidaurreta, A. M.: Cystic fibrosis of pancreas. J.A.M.A., **172**:2065-2072, (Apr. 30) 1960.

6. di Sant'Agnese, P. A., and Andersen, D. H.: Cystic fibrosis of pancreas in young adults (Editorial). Ann. Int. Med., **50**:1321-1330. (May) 1959.

Coming Meetings

IOWA

June 18-21	**Spring Postgraduate Conference (Iowa Chapter of the American Academy of General Practice).** The New Inn, Lake Okoboji

CONTINENTAL U. S.

June 1-2	**Medical Emergencies.** U.C.L.A., Los Angeles
June 1-3	**Back Pain.** University of California, San Francisco
June 1-29	**Internal Medicine.** Harvard Medical School, Boston
June 2	**Lederle Symposium.** Davenport Hotel, Spokane, Washington
June 4-8	**Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago
June 4-8	**Psychiatry for the Internist (American College of Physicians).** The Psychiatric Institute, University of Maryland School of Medicine, Baltimore
June 4-8	**Hematology.** Cook County Graduate School of Medicine, Chicago
June 4-9	**Histochemistry.** University of Kansas Medical Center, Kansas City, Kansas
June 4-9	**Basic Science and Its Relation to Internal Medicine.** Harvard Medical School, Boston
June 4-15	**Surgical Technic.** Cook County Graduate School of Medicine, Chicago
June 4-22	**General Surgery.** Harvard Medical School, Boston
June 4-22	**Forty-seventh Annual Postgraduate Session of the Trudeau School of Tuberculosis and Other Pulmonary Diseases.** Saranac Lake, New York
June 7-9	**Corneal Lens: Theory and Application.** University of California, San Francisco
June 10-16	**General Surgery.** University of Nebraska College of Medicine, Omaha
June 11	**New Hope for the Mentally Retarded Child.** University of Kansas School of Medicine, Kansas City, Kansas
June 11-16	**Histochemistry.** University of Kansas Medical Center, Kansas City, Kansas
June 11-22	**Fractures and Traumatic Surgery.** Cook County Graduate School of Medicine, Chicago
June 11-22	**Neuromuscular Diseases.** Cook County Graduate School of Medicine, Chicago
June 14-17	**American Electroencephalographic Society.** Claridge Hotel, Atlantic City
June 17-23	**Obstetrics and Gynecology.** University of Nebraska College of Medicine, Omaha
June 18-20	**Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago
June 18-20	**American Geriatrics Society.** Palmer House, Chicago
June 18-20	**American Neurological Association.** Claridge Hotel, Atlantic City
June 18-22	**Advanced Electrocardiography.** Cook County Graduate School of Medicine, Chicago

June 18-22 **Canadian Medical Association.** Royal Alexandria Hotel, Winnipeg

June 18-22 **Annual Educational Conference, National Association of Sanitarians.** Cincinnati

June 21-22 **American Rheumatism Association.** Edgewater Beach Hotel, Chicago

June 21-23 **Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago

June 21-23 **Endocrine Society.** Palmer House, Chicago

June 21-24 **American Therapeutic Society.** McCormick Place, Chicago

June 21-25 **Twenty-eighth Annual Meeting of the American College of Chest Physicians.** Morrison Hotel, Chicago

June 22-23 **Urology.** Stanford University School of Medicine, Palo Alto, California

June 22-24 **International College of Angiology.** Conrad Hilton Hotel, Chicago

June 23 **Community Preparedness for Emergencies—Tenth Annual National Conference on Disaster Medical Care (AMA).** Palmer House, Chicago

June 23 **International Cardiovascular Society, North American Chapter.** Conrad Hilton Hotel, Chicago

June 23 **American Academy of Tuberculosis Physicians.** Palmer House, Chicago

June 23 **Annual Meeting of the American Association for the Study of Headache.** Palmer House, Chicago

June 23-24 **American Diabetes Association, Inc.** Conrad Hilton Hotel, Chicago

June 24 **Society for Vascular Surgery.** Conrad Hilton Hotel, Chicago

June 24 **Society for Surgery of the Alimentary Tract.** Sheraton-Chicago, Chicago

June 24-28 **111th Annual Meeting of the American Medical Association.** Chicago

June 25-27 **Obstetrics and Gynecology.** University of Colorado Medical Center, Denver

June 25-29 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

June 25-July 6 **Electrical Technics in Biology and Medicine (Case Institute of Technology).** University Circle, Cleveland

June 27-30 **Ninth Annual Meeting, Society of Nuclear Medicine.** Baker Hotel, Dallas

June 28-30 **International Conference on Opportunistic (Secondary) Fungus Infections.** Durham, North Carolina

June 30-July 1 **Workshop in Clinical Hypnosis (American Society of Clinical Hypnosis—Education and Research Foundation).** Sheraton-Chicago Hotel, Chicago

July 1-4 **International College of Surgeons' New England Regional Meeting.** Mt. Washington Hotel, Bretton Woods, N. H.

July 3-8 **Seminar for General Practitioners (UCLA).** University Residential Conference Center, Lake Arrowhead, California

July 5-6 **Practical Applications in the Management and Rehabilitation of Arthritis.** University of Colorado Medical Center, Denver

July 9-12 **Medical and Surgical Aspects of the Retina (University of Colorado School of Medicine) and Summer Convention of the Colorado Ophthalmological Society.** The Stanley Hotel, Estes Park, Colorado

July 9-13 **Symposium for General Practitioners on Tuberculosis and Other Pulmonary Diseases (American Thoracic Society, Saranac Lake Medical Society, New York State Academy of General Practice, Canadian College of General Practice).** Saranac Lake, New York

July 13-14 **Rocky Mountain Cancer Conference.** Brown Palace Hotel, Denver

July 16-27 **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

July 19-21 **Dermatology for General Practitioners.** University of Colorado Medical Center, Denver

July 23-27 **Cardiopulmonary Problems in Children (American College of Chest Physicians).** Edgewater Beach Hotel, Chicago

July 23-Aug. 3 **Surgical Technic.** Cook County Graduate School of Medicine, Chicago

July 30-Aug. 3 **Audiology Workshop (University of Colorado Medical Center).** Estes Park, Colorado

ABROAD

June 16-21 **International Symposium on Enzymic Activity in the Central Nervous System,** Goteborg, Sweden. Write: Dr. A. Lowenthal, Institut Bunge, 59 rue Philippe Williot, Berchem-Antwerp, Belgium

July 1-4 **International Conference on Oral Surgery.** Royal College, London. Write: D. C. Trexler, Executive Secretary, American Society of Oral Surgeons, 840 North Lake Shore Drive, Chicago 11

July 1-7 **From Disability to Work (The British Council for Rehabilitation of the Disabled), European International Study Course and Conference.** Cambridge University, London

July 8-12 **International Congress of Psychosomatic Medicine and Childbirth.** Paris. Contact: Dr. L. Chertok, 22 rue Legendre, Paris 17, France

July 28-Aug. 3 **Pan American and South American Pediatric Congress.** Quito, Ecuador. Write: Dr. Jorge Vallarino, P.O. Box 2269, Quito, Ecuador

July 30-Aug. 13 **Fifth Annual Refresher Course (University of Southern California).** Royal Hawaiian Hotel, Honolulu, and on *S. S. Matsonia.* Address: Phil R. Manning, M.D., Associate Dean Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Avenue, Los Angeles 33

Aug. 8-15 **International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York

Sept. 3-7 **First International Conference on Water Pollution Research.** London. Write: Mr. W. Wesley Eckenfelder, Jr., Manhattan College Environmental Engineering Research Laboratory, 514 Sylvan Avenue, Englewood Cliffs, New Jersey

Sept. 5-8 **International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany

Sept. **International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest

Sept. **Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London

Oct. **American Society of Plastic and Reconstructive Surgery,** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadhent, M.D., Secretary, 508 East South Temple, Salt Lake City

Oct. 7-13 **World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.

Oct. 22-28 **International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.

Nov. 11-16 **World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19

Dec. **International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines

Feb. 20-24, 1963 **Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Care in the Use of Terms

The rapid increase in the use of chemotherapy in treating disease has given rise to a large number of unfortunate results. Numerous terms intended to convey specific meanings are frequently used incorrectly in designating adverse reactions. The loose application of those terms has produced a great deal of confusion.

In a general introduction to a symposium on drug sensitization presented at a meeting of the Royal Society of Medicine, Professor M. L. Rosenheim* elaborated recently upon a classification of untoward effects of drugs suggested by F. A. Brown in 1955. Though there is considerable overlap and though it isn't always possible to classify an individual drug reaction accurately, adherence to the classification will eliminate much of the confusion.

According to this British physician, the adverse reactions can be put into one or another of the following six categories:

1. Overdosage. Toxic effects from overdosage are usually predictable as a result of animal experimentation and clinical trials. Overdosage may be absolute in cases in which an excessive amount has been given in error. An alteration in the metabolic state or an impairment of normal destruction or excretion, however, may lead to an excessive effect from no more than a normal dose. In cases of liver failure, a normal dose of morphine may be dangerous. In hypokalemic states there is a potentiation of digitalis. In renal failure, streptomycin or hexamethonium has a prolonged effect. The recommended doses of certain antibiotics in the treatment of infection in premature infants have proved excessive and in some instances have proved fatal.

2. Intolerance. Drug intolerance is a lowered threshold to the normal pharmacologic action of the drug. There is considerable variation from patient to patient in the response to drugs, and though it has not been proved, it is possible that there is a biochemical cause for the variation in tolerance.

3. Side Effects. These are the therapeutically undesirable but unavoidable effects of drugs. A drug is selected for a specific pharmacologic action, but dosage may have to be limited because of other pharmacologic actions—not toxic effects, but other inevitable results. The use of ganglion-blocking agents is limited by the parasympathetic blockade that occurs along with the sympathetic block. Certain drugs may interfere with normal metabolic pathways. Anti-eleptic drugs may provoke a megaloblastic anemia which is relieved by folic acid.

4. Secondary Effects. These are the indirect consequences of primary drug action. The change in the intestinal flora following tetracycline therapy, with signs of either vitamin deficiency or superinfection with other organisms, is a classic example of a secondary effect. The Herxheimer reaction due to released products of killed organisms falls into this category.

5. Idiosyncrasy. This is an inherent qualitative abnormal reaction to a drug. The reaction occurs when a drug is first given, and is not the result of an acquired sensitivity. It is an abnormal response and not just an exaggeration of a normal one. The term *idiosyncrasy* is frequently misused as a synonym for *hypersensitivity,* but an idiosyncrasy is not an antigen-antibody response. A true idiosyncrasy, for example, is the development of hemolytic anemia in some 10 per cent of American Negroes when given the antimalarial drug primaquine. This reaction is thought to reflect an inherent deficiency of glucose-6-phosphate dehydrogenase in the red blood cells. The hemolytic anemia which occurs with sulfonamide and nitrofurantoin therapy is attributable to idiosyncrasy. An inherited enzyme defect may cause both an idiosyncrasy and an intolerance.

6. Hypersensitivity. This is an untoward reaction which has been conditioned by a previous exposure to the drug, and it is essentially an antigen-antibody reaction. It may be immediate or delayed, and it occurs more frequently in patients who suffer from allergic disorders. Acute anaphylaxis is the most serious hypersensitivity reaction. Drug-induced thrombocytopenic purpura, some forms of agranulocytosis and hemolytic anemia, and many urticarial reactions are sensitivity reactions.

Confronted with the list of drugs associated with blood dyscrasia that has been compiled by the AMA Council on Drugs, one finds it difficult to classify the untoward reactions accurately. The precise mechanisms of many reactions have not yet been elucidated. It does not contribute to clarity or accuracy, however, for medical authors to use the term *drug idiosyncrasy* as if it were the common denominator for this whole group of untoward reactions.

*Rosenheim, M. L.: Symposium on drug sensitization: general introduction. PROC. ROYAL SOC. MED., 55:7-8, (Jan.) 1962.

Attend the
AMA ANNUAL MEETING
McCormick Place, Chicago
June 24-28

Villain or Hero

Too much emphasis cannot be given to the fact that each individual physician is a public relations representative of the medical profession. The public image is determined by the integrity, the fairness, the kindness, the compassion, the competency of each physician in his relationship with each individual patient. It is generally recognized that there has been an unfortunate deterioration in the attitude of the layman toward our profession, and in particular toward organized medicine. The regaining of the layman's former wholesome regard, respect and confidence is the obligation of every physician.

Some of the most critical of our fellow citizens show gratitude toward and confidence in their own particular doctors, but there are others whose memories appear to be unconscionably short. Somehow their attitude brings to mind "Tommy," a poem from the pen of Rudyard Kipling:

I went into a public-'ouse to get a pint of beer,
The publican 'e up an' sez, "We serve no red-coats here."
The girls be'ind the bar they laughed an' giggled fit to die,
I outs into the street again an' to myself sez I:
O it's "Tommy this, an' Tommy that, an' Tommy, go away";
But it's "Thank you, Mister Atkins," when the band begins to play—
The band begins to play, my boys, the band begins to play,
O it's "Thank you, Mister Atkins," when the band begins to play.

I went into a theater as sober as could be,
They gave a drunk civilian room, but 'adn't none for me;
They sent me to the gallery or round the music-'alls,
But when it comes to fightin', Lord! they'll shove me in the stalls!
For it's Tommy this, an' Tommy that, an' "Tommy, wait outside";
But it's "Special train for Atkins" when the trooper's on the tide—
The troopship's on the tide, my boys, the troopship's on the tide,
O it's "Special train for Atkins" when the trooper's on the tide.

Yes, makin' mock o' uniforms that guard you while you sleep
Is cheaper than them uniforms, an' they're starvation cheap;
An' hustlin' drunken soldiers when they're goin' large a bit
Is five times better business than paradin' in full kit.
Then it's Tommy this, an' Tommy that, an' "Tommy, 'ow's yer soul?"

But it's "Thin red line of 'eroes" when the drums begin to roll—
The drums begin to roll, my boys, the drums begin to roll,
O it's "Thin red line of 'eroes" when the drums begin to roll.

We aren't no thin red 'eroes, nor we aren't no blackguards too,
But single men in barracks, most remarkable like you;
An' if sometimes our conduck isn't all your fancy paints,
Why single men in barracks don't grow into plaster saints;
While it's "Tommy this, an' Tommy that, an' Tommy, fall be'ind,"
But it's "Please to walk in front, sir," when there's trouble in the wind—
There's trouble in the wind, my boys, there's trouble in the wind,
O it's "Please to walk in front, sir," when there's trouble in the wind.

You talk o' better food for us, an' schools, an' fires, an' all:
We'll wait for extry rations if you treat us rational.
Don't mess about the cook-room slops, but prove it to our face
The Widow's Uniforms is not the soldier man's disgrace,
For it's "Tommy this, an' Tommy that," an' "Chuck him out, the brute!"
But it's "Savior of 's country" when the guns begin to shoot;
An' it's "Tommy this, an' Tommy that, an' anything you please";
An' Tommy ain't a bloomin' fool—you bet that Tommy sees!

Self-Discipline

In this era when we have a national debt of almost three hundred billion dollars, when state and local governments as well as the colossus in Washington are seeking more and more ways to raise money for essential or non-essential spending, and when installment buying has become an endemic disease, thrift and hard work somehow are no longer regarded by most people as basic virtues. It therefore is encouraging, once in a while, to find young people who recognize the wisdom of living within their incomes and of actually saving some money.

For that reason, the remarkable wisdom and judgment of a young couple whom we know must certainly deserve a paragraph or two. Mary is 28, and a busy, happy wife and mother. Dick is 30, a young scientist on a modest salary—an ambitious, hard working and realistic young man. They have two children, five and seven years of age. They are buying their home on monthly installments, a

modest three-bedroom house in an area of unpretentious homes. A few months ago Mary received a bequest of half a million dollars. After much thought and discussion, the young people decided to invest the inheritance and to use neither the principal nor the income until they reached their mid-forties.

They arrived at their unusual decision for several reasons. It was their mutual feeling that having more money to spend could not increase their happiness. Loss of incentive would unquestionably jeopardize Dick's career. Affluence could have an adverse effect upon their children and lead them to adopt values that their parents consider undesirable. Additional spending money would not add to the deep affection, the firm discipline and the sound values that already exist in their home.

Governmental agencies and other families might well emulate Mary and Dick. Money in large quantities is no guarantee of happiness. Affluence does not assure character. An orgy of spending does not buy friends. Old-fashioned conservative virtues still have merit.

Abdominal Surgery in Geriatric Patients

The significance of chronologic age upon the mortality of abdominal operations in geriatric patients has recently been analyzed by Stahlgren.* In his series, 102 patients over 69 years of age underwent 111 extensive operations. Gynecologic, urologic and orthopedic cases were excluded from the study group. There were 36 operations on the colon and rectum, 9 on the biliary tract, 12 upon the stomach, 4 for obstruction of the small intestine, 46 for herniorrhaphy, 2 for appendectomy and 2 for miscellaneous indications.

There were 94 survivors in the group of surgical patients, and thus the over-all mortality in the 111 operations was 15.3 per cent. The mortality rate for emergency operations was 2½ times the mortality rate for non-emergency surgery.

The author concluded that chronologic age in itself is not an important factor in the mortality rate. The serious nature of the primary disease in a person of advanced age is the most important factor affecting the outcome of abdominal operations.

With the increased longevity of the older age group, it is becoming increasingly important to correct surgical defects in the upper ranges of middle-age. Certainly no patient should be permitted to take a hernia, gallstones or an enlarged prostate into old age. It is only by such foresight that the high incidence of emergency operations, with their attendant high mortality, can be significantly reduced.

*Stahlgren, L. H.: Analysis of factors which influence mortality following extensive abdominal operations upon geriatric patients. SURG., GYNEC. & OBST., **113**:283-292, (Sept.) 1961.

Ulcerative Colitis in Children

If there ever was any doubt about the seriousness of ulcerative colitis, a recent report from the Mayo Clinic* on the prognosis of the disease in children should convince the skeptic. It is a follow-up study of 427 children less than 15 years of age when diagnosed, who were observed from 1918 to 1959. The mean age at the time of diagnosis had been 11.1 years, and the diagnosis had been confirmed by roentgenograms or proctoscopy, or both. Twenty-six patients had been lost to follow-up, and the status of each of the remaining 401 patients was determined as of January, 1961.

The study revealed that 112 of the 401 patients had died. Of the 112 fatalities, 40 had succumbed to carcinoma of the colon, and 57 to other diseases related to ulcerative colitis. Survival rates for the 401 patients, calculated by actuarial methods at 5, 10, 15 and 20 years, were 89.2, 80.8, 66.4 and 58.9 per cent, respectively. The calculated survival rate for normal children having a mean age of 11.1 years was 97.9 per cent.

Carcinoma of the colon or rectum had developed in 46 patients, and intermittent symptoms of chronic ulcerative colitis had been present in 39 of them until carcinoma was detected. Of the 46 patients who had developed carcinoma, 40 had died from the malignancy. Six patients treated by colectomy and ileostomy were still living eight years after their operations. One patient had developed carcinoma at 10 years of age, after seven years of active disease. Thirty-seven of the 46 patients had developed carcinoma before the age of 31 years. The mean interval from the time of diagnosis of chronic ulcerative colitis to death from carcinoma had been 14.8 years, and 33 patients had died between seven and 20 years after the onset of colitis. By contrast, among 401 unselected children between one and 14 years of age, less than one death from any malignant neoplasm could have been expected. The duration of the ulcerative colitis appeared to have been an important factor in the development of carcinoma.

A major operation had been performed on each of 85 patients at some time during the course of the disease. Total colectomy with ileostomy had been done in 48 patients. Thirty-one of 36 patients in whom cancer had not developed were improved at the time of the follow-up study, after periods ranging from six months to 17 years; one had improved; and four of the group had died. Twelve patients with carcinoma of the colon also had had colectomy and ileostomy, and six were living at the time of the follow-up study. Five patients had had subtotal colectomy and ileostomy; three

*Michener, W. M., Gage, R. P., Sauer, W. G., and Stickler, G. B.: Prognosis of chronic ulcerative colitis in children. NEW ENGLAND J. MED., **265**:1075-1079, (Nov. 30) 1961.

patients without carcinoma were improved; in the other two, carcinoma of the rectal stump had developed six and 17 years after operation, and both patients had died. More limited operations had been carried out in 32 patients for palliative reasons, and of them 27 had died.

Just 126 of the patients were thought to be asymptomatic at the time of the follow-up study. In the present state of knowledge, according to the investigators, the clinical course of the patient does not permit a prediction as to whether chronic ulcerative colitis will give rise to carcinoma in any particular instance.

From this experience it would appear that total colectomy and ileostomy offer a promising method of management, but the authors admonish that this implication must be interpreted with caution. The operation is not without risk, the complications of ileostomy are numerous, and a longer follow-up period will be necessary before definite conclusions can be drawn in this regard. The fact that 126 out of the 401 patients were asymptomatic at the time of the study explains the reluctance of the surgeon to subject these unfortunate children to such a serious operation.

Again, Carcinoma of the Breast

For some 60 years, the accepted treatment for carcinoma of the breast has been radical mastectomy. First in 1949[1] and again in 1955,[2] McWhirter, the Edinburgh surgeon, challenged the method of radical excision and reported the results of an extensive experience with simple mastectomy and radiotherapy in the treatment of cancer of the breast. The subject has been controversial ever since, and though the two methods of treatment have been compared in numerous contributions to the literature, no controlled or blind study has been made.

In the past year, George Crile, Jr.[3] has reported upon the simplified treatment of cancer in a relatively small series of patients operated upon between 1953 and 1957. From this experience, Dr. Crile concludes that in the treatment of Stage 1 cancer of the breast, simple mastectomy without prophylactic radiation appears to be at least as effective as radical mastectomy with or without radiation. However, the patients have been followed for only three years. In the patients with Stage 1 cancer who were treated by simple mastectomy without radiation and in whom the disease later reappeared in the axillary nodes and was removed by axillary dissection, the chances for survival of the patient do not appear to be any less than in individuals on whom radical mastectomy was done initially. In favorable Stage 2 cancer, modified radical mastectomy with preservation of the muscles and without radiation therapy seems to be as effective as any other treatment or combination of treatments. Dr. Crile states: "The success of simple treatments is well enough established that controlled clinical studies can now be made without fear of doing an injustice to the patients receiving the simpler treatments."

He goes on to say, "The interplay between the good and the bad of various types of treatment makes it difficult to decide how to treat the individual patient. . . . I do not know the best method of treatment. . . . Our figures do not show any superiority of one method of treatment over another. . . . What is needed now is a series of carefully planned blind experiments in which all factors except the type of treatment are the same." Thus it seems apparent that Dr. Crile is not recommending abandonment of radical mastectomy, but rather has reported impressions gained from an exploratory effort to evaluate the merit of simple mastectomy in the treatment of carcinoma of the breast.

Quite in contrast to the concept so energetically championed by McWhirter and to the conciliatory attitude expressed by Crile, another surgeon, O. Theron Clagett, having reviewed some 9,000 patients who have had radical mastectomies for cancer of the breast at the Mayo Clinic, stands resolute and emphatic in support of that procedure for the treatment of the disease. A recent paper that he has written on the subject concludes with the following paragraph:[4]

"The treatment of carcinoma of the breast is a controversial subject. I realize the inadequacies of radical mastectomy as well as anyone. I want methods of treatment that are better and more effective than radical mastectomy as much as anyone, and I hope that when more effective treatment becomes available I will be among the first to recognize it and use it. I thoroughly approve of the dissatisfaction with radical mastectomy that is apparent. It is always healthy to be dissatisfied and to seek something better. However, in my opinion, at the present time classic, radical mastectomy still provides the most effective treatment that can be offered to patients with carcinoma of the breast. Hormone therapy, chemotherapy and irradiation may be added to radical mastectomy under appropriate circumstances. Efforts to treat patients having carcinoma of the breast by simple mastectomy or any other abbreviation of classic, radical mastectomy is a backward step and should be condemned."

REFERENCES

1. McWhirter, R.: Treatment of cancer of breast by simple mastectomy and roentgenotherapy. Arch. Surg., **59**:830-842, (Oct.) 1949.
2. McWhirter, R.: Simple mastectomy and radiotherapy in treatment of breast cancer. Brit. J. Radiol., **28**:128-139, (Mar.) 1955.
3. Crile, G., Jr.: Simplified treatment of cancer of breast: early results of clinical study. Ann. Surg., **153**:745-761, (May) 1961.
4. Clagett, O. T.: Treatment of carcinoma of breast: controversial subject. Missouri Med., **59**:25-30, (Jan.) 1962.

President's Page

It is not enough for us merely to oppose all schemes for attaching health care to Social Security. Rather, we must present an alternative that will do two things: (1) measure the need for medical aid to the aged; and (2) establish an economical program for meeting that need. In Iowa, we have such an alternative.

Following the defeat of the King-Anderson Bill, the obtaining of funds for the implementation of the Kerr-Mills Act must be the Number 1 objective of the Iowa Medical Society.

It won't be easy. As was true in getting the Kerr-Mills Implementation Act onto the books, the IMS will probably have to take the lead in requesting funds to put the 1961 law into effect.

George A. Scanlon

President

Case Studies

Micturition Syncope: Reports of Two Cases

R. OVERTON, M.D., Des Moines

Recently, I have had occasion to study two private patients in whom syncopal attacks had occurred during micturition. Both were young male adults who thought themselves to be in good health and hadn't been frightened, in the least by their experiences. Neither had a history of syncope under any other circumstances, and each of them was brought to my attention by his worried wife.

CASE 1

Mr. H. D. G., who is 32 years of age, got up to go to the bathroom about 1½ hours after going to bed, and fainted, hitting his head on the bathtub as he fell to the floor. His wife found him there, incontinent, biting his tongue, moderately cyanotic and exhibiting rhythmical but irregular movements of the jaw and twitching of the hands. He remained in that state for about five minutes, and afterward had a feeling of dizziness and weakness for an hour or two. He did not, however, have persistent headaches, nor did he fall into a deep sleep.

He had had one previous attack, five years ago. There was no history of alcoholic intoxication. His past medical history was negative. Before each attack, he had eaten a bag of chocolate-chip cookies. The first occurrence had taken place six hours before he went to bed.

Physical examination revealed a 32-year-old white male of mesomorphic body build, in no acute distress and currently in good health. All findings were essentially normal. His blood pressure was 128/70 mm. Hg, and his pulse was 76/min. He was obese, especially through the abdominal walls. The deep tendon reflexes and the neurological examination were normal.

We felt that perhaps the syncopal attack might have represented an epileptic type of seizure, an organic brain syndrome, or a consequence of circulatory changes of one variety or another in the brain. A neurosurgeon saw the patient in consultation, and he felt that there was no evidence of increased intracranial pressure. An internist who also saw him felt that the EKG findings indicating myocardial ischemia on the anterior surface, with moderate involvement, were not characteristic of true organic heart disease but were the consequence of a convulsive seizure, and thus that the syncopal attack had not been on the basis of a cardiovascular disease.

The patient's transaminase was 15 units/ml, and his sedimentation rate was 7 mm./hr. His spinal fluid showed no microorganisms. The colloidal gold curve was 0122210020. The calcium was 9.8 mg. per cent; the BUN 9.7 per cent; the sodium 138 mEq./L.; the inorganic phosphorus 4.6 mg. per cent; and the potassium 4.6 mEq./L. The spinal fluid chlorides were 131 mEq./L. and the total protein was 72 mg./100 ml. The urinalysis was essentially negative, except for a slight trace of albumin. The complete blood count was normal. The protein-bound iodine was 5.9 mcg. per cent.

A chest x-ray was normal, except that the heart size was at the upper limit of normal, and the impression was of a hypertensive contour heart. The cervical spine was normal, and the skull films were normal. Serial electrocardiograms indicated an unusually large P wave and minor changes in the T waves suggestive of minor myocardial changes or drug effects. However the serial tracings revealed that these findings were of a transient nature. An electroencephalogram was normal.

When the patient was seen a second time, for a follow-up examination and evaluation, his blood pressure was normal and the physical findings were likewise normal, except for his moderate obesity. The Wassermann reaction was negative, and the glucose tolerance curve was normal. There was no hypoglycemia. A repeat spinal fluid examination revealed a cell count of 5/cu. mm., color clear, and total protein 43 mg. per cent. A urinalysis and a complete blood count were again normal. A pneumoencephalogram was interpreted as follows: "Spinal canal shows fairly good visualization of the ventricular system, and it is in its normal position. There is some asymmetry of the ventricular system, with the left being somewhat dilated as compared with the right, but no definite

evidence of intracranial pathology, such as a neoplasm, can be seen."

The patient's blood pressure was 150/90 mm. Hg when he was lying down, and when he stood erect it dropped to 116/84 mm. Hg. His pulse was 84/min. Other readings were taken with the patient in various positions, following vigorous exercise, and at rest, but none of the readings fell outside of the range represented by the figures just quoted, and the patient experienced no syncopal attacks.

Final diagnosis: syncope.

CASE 2

Mr. D. M., age 23, had a seizure in the bathroom of his home at 3:00 a.m., after rising to micturate. He says he had had six previous attacks, all occurring during micturition at night. The first occurred when he was 16 years of age. He had not been drinking or over-indulging in food at bedtime.

The patient states that though he doesn't remember the circumstances of his previous attacks, on this most recent occasion he had had a heating pad on his back for several hours to relieve pain due to back strain. He remembers "bearing down" to speed his urination. His wife says that he was pale and sweaty when she found him, and that she noted some moderate discoloration and some slight, jerky motions of his extremities during the attack. The whole episode lasted about three minutes, and afterward he felt only "tired." His back, of course, was sore, as it had been previously.

A complete physical examination was performed, and all his sensations were found to be intact. The following studies elicited findings that were judged to be within normal limits: calcium 10.2 mg. per cent, total cholesterol 150 mg. per cent, inorganic phosphorus 3.8 mg. per cent, potassium 4.6 mEq./L., sodium 146 mEq./L., BUN 19 mg. per cent, uric acid 4.0 mg. per cent. A complete blood count, a urinalysis, a glucose tolerance and a protein-bound iodine determination were all normal.

Skull films, an electrocardiogram, an encephalogram and intravenous pyelograms were done. A lumbar puncture showed normal pressure, chloride 126 mg. per cent, glucose 68 mg. per cent, and protein 45 mg.

The patient says he knows when he is going to have an attack, for he feels hot, but his impression may be the result of a chain of coincidences. On the most recent occasion he had had a heating pad against the lumbar portion of his back, and on other occasions the weather may have been hot. He also stated that each time he has had an attack, he has been worried about some problems, especially his financial position and his employment.

DISCUSSION

The syncopal syndrome is well known to all physicians, and is seen under many and varied circumstances. It has been described as accompanying many otherwise unrelated conditions. The simple faint, called vaso-depressor syncope, is often seen in association with bad news, fear, the sight of blood, etc. Ordinarily, the cardiac output is well maintained in the fainting reaction,[1] and this seems to be its characteristic feature. Syncopal attacks also occur with the carotid sinus depressor reflex and vaso-vagal stimulation; postural hypertension; diabetic neuropathy, tabes dorsalis and bilateral sympathectomy; cardiac conditions such as Adams-Stokes; external compression of the thorax with the glottis closed; hypoglycemia; and febrile illnesses.

In the two patients presented here, the predisposing factors seem to have been quite diverse, if one can judge from the histories that they gave. Both were apparently in good health at the time of onset. One of them said that both of his attacks had occurred several hours after he had eaten a considerable number of chocolate-chip cookies. He is convinced that there must have been a cause-effect relationship between the two events, and has resolved to eat no more of that type of food. The other patient associates heat with his attacks, and has also noted that each attack has occurred at a time when he was under some emotional stress and worry.

Syncope during micturition has recently been studied as a separate entity by several investigators, and the following is a brief summary of articles about it that have appeared in the recent literature.

Lamb and Dermksian[2] have suggested lack of sleep, lack of food, consumption of alcohol, a warm environment and fatigue as possible etiologies. Lyle, Monroe, Flinn and Lamb, in a report of 24 cases of this syndrome, found "alcoholic ingestion in 14 of the 24 attacks as the most common predisposing factor."[3] In 1960, Eberhart and Morgan presented a case of syncope associated with micturition and hematuria from a calculus that was felt to have been irrelevant. The patient also had a vesicle-neck obstruction which was corrected. They felt that "the actual problem is a functional bladder-neck obstruction which results in the use of the Valsalva maneuver to induce voiding."[4]

At this point, a brief description of the Valsalva maneuver may be appropriate. I quote from an article by George B. Prozan and Allen Litwin:

"The dynamics of Valsalva's maneuver have been described by several investigators and have been divided into four phases. Phase I begins with the onset of straining and consists of a rise in blood pressure associated with a forceful expulsion of blood from the lungs into the left side of the heart, increasing cardiac output. This rise in blood pressure is followed shortly by a marked fall, which is the beginning of phase II. Phase II continues until the release of the strain and is manifested by a narrow pulse pressure with a rising

diastolic pressure resulting from the precipitous fall in cardiac output and the concomitant rise in peripheral resistance. Upon release of the strain—the beginning of phase III—the dynamics of phase II are exaggerated due to the absorption of the right ventricular output by the sudden expansion of the previously compressed vascular tree of the lungs, which momentarily decreases further the venous return and output of the left ventricle. Phase IV follows immediately with a seemed rise in blood pressure above control levels, a consequence of the increasing cardiac output and the maintenance of the increased peripheral resistance. This is the so-called "over-shoot." This blood pressure elevation activates the carotid sinus and the aortic arch reflexes, which cause a diminution in peripheral resistance and a bradycardia."[7]

William Proudfit and Mario Forteza reported on seven cases of micturition syncope, in 1959, in patients ranging in age from 16 to 37 years. All of the attacks had occurred after prolonged recumbency. The authors had studied the Valsalva effect and felt that the maneuver is performed at the start and cessation of urination in men. They explained that because the trunk is less muscular in women, the Valsalva maneuver is less effective, and also that the position which women assume during micturition makes them less affected by any resultant anatomic changes. Their explanation for the syncope was that it "results from the circulatory effects of the Valsalva maneuver performed while the patient is urinating, at a time when the venous return to the heart and the peripheral resistance are low."[5]

McGee,[6] in a study of two cases of micturition syncope, agreed with Proudfit and Forteza and explained that the fall in blood pressure and the rise in intracranial extravascular pressure after recumbency and during the Valsalva maneuver creates temporary ischemia with resulting syncope.

Prozan and Litwin[7] also presented three cases of syncope following micturition. One of the patients had been found in a shock-like state, with atrial fibrillation, a high degree of A-V block, ventricular premature beats and bradycardia. The second patient had T-wave changes suggestive of injury to the posterolateral wall. The changes persisted for a few hours after the syncope, and then disappeared spontaneously. The third patient, following micturition, had fainted while turning his head toward the bathroom light and reaching to turn it off.

Prozan and Litwin asked 20 individuals to perform experimental Valsalva maneuvers, but in only one of them were there the EKG changes that had been found in the three patients. These changes were in the T wave, sinus arrest and nodal rhythm of cardiovascular instability.

The authors felt that although micturition syncope has been thought to be a manifestation of phase II of the Valsalva maneuver, with the fall of cardiac output during strain, that post-micturition syncope occurs in phase IV, when sensitization of the myocardium by anoxemia can build up acetyl choline to cause cardiac standstill and other arrhythmias.

Another interesting concept regarding the physiologic dynamics of the syncopal syndrome can be found in a study by Lyle, Monroe, Flinn and Lamb. Their studies of cardiovascular status did not indicate significant changes in myocardium. It is their hypothesis that the emptying of a distended bladder can cause a reflex type of syncope:

"In persons assuming the upright posture with a distended bladder, reflex vasoconstriction may obviate the usual drop in blood pressure of 5 to 20 mm. that stimulates carotid-sinus and aortic-adaptive mechanisms. On voiding, this reflex vasoconstriction may be released with concomitant fall in pressure. However, in this situation the postural-adaptive mechanisms are not allowed the usual period of adjustment afforded while the person gradually arises by first sitting. Instead, the compensatory reactions must take place while he is already erect and standing motionless. In the presence of predisposing factors lowering peripheral arterial resistance—for example, recumbency and alcohol intake—the adaptive mechanisms may occasionally fail, with resulting circulatory collapse."[3]

CONCLUSION

Two cases of micturition syncope have been reported. Both were in young, healthy males. One patient had overindulged in food prior to each episode. The other felt that heat and anxiety had played roles in his difficulties. Both exhibited an apparent lack of concern regarding their condition. One had EKG findings suggesting some myoischemia for a few hours afterward.

The possible etiology has been discussed, and the literature on the subject has been summarized.

REFERENCES

1. Stead, Eugene A., Jr.,: "Fainting." In: MacBryde, C. M., ed.: Signs and Symptoms, Third Edition. Philadelphia, J. B. Lippincott Co., 1957. Chapter XXVII, pp. 665-678.
2. Lamb, L. E., and Dermksian, G.: Syncope in population of healthy young adults; incidence, mechanisms and significance. J.A.M.A., **168**:1200-1207, (Nov. 1) 1958.
3. Lyle, C. B., Jr., Monroe, J. P. H., Flinn, D. E., and Lamb, L. E.: Micturition syncope; report of 24 cases. New England J. Med., **265**:982-986, (Nov. 16) 1961.
4. Eberhart, C., and Morgan, J. W.: Micturition syncope; report of case. J.A.M.A., **174**:2076-2077, (Dec. 17) 1960.
5. Proudfit, W. L., and Froteza, M. E.: Micturition syncope. New England J. Med., **260**:328-331, (Feb. 12) 1959.
6. McGee, R. R.: Micturition syncope; report of two cases. South. M. J., **52**:1076-1077, (Sept.) 1959.
7. Prozan, G. B., and Litwin, A.: Post-micturition syndrome. Ann. Int. Med., **54**:82-89, (Jan.) 1961.

Attend the
AMA ANNUAL MEETING
McCormick Place, Chicago
June 24-28

Hearing Conservation

Definition of a Hearing Conservation Program

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, *consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.*

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of representatives from the section on otolaryngology of the Iowa Medical Society, from the Academy of Otolaryngology and Ophthalmology, from the American Academy of General Practice, from the State Department of Health, from the Department of Otolaryngology and the Department of Speech Pathology and Audiology at S.U.I., from the Division of Special Education of the State Department of Public Instruction, from the Iowa School for the Deaf, and from the Des Moines Chapter of the American Hearing Society.*

Before attempting to state what a hearing conservation program is, or should be, it seems appropriate for us to call attention briefly to a few important facts about hearing and hearing impairment.

One of the most fundamental of these facts is that hearing involves much more than the ability to detect the presence of sound and to attach some significance to various kinds of sounds. More significant than all else is the fact that a reasonably intact sense of hearing is required for an individual to communicate normally with his fellows. It has often been said that man's most distinctive characteristic—indeed the essence of his humanness—is his ability to make contact with the minds of his fellows by means of linguistic communication. Because a significant hearing impairment inevitably interferes with communication through language, it strikes at something which is very deep and vital, with an emotional impact and with undercurrents that are deeply disturbing.

A second fundamental fact of particular importance where children are concerned is that much of what we learn comes to us through the sense of hearing. Hence, a significant impairment of hearing presents a very serious educational handicap.

Third, a hearing handicap differs very importantly from almost every other kind of crippling condition in that it does not "show" in the way that paralysis or blindness "shows." Thus, a person's failure to respond, or his inability to understand, is sometimes mistakenly interpreted as inattentiveness, as intellectual dullness or as deliberate intractableness, and may arouse irritation or impatience rather than sympathy.

There are, of course, other facts about hearing impairment that might be discussed, but an appreciation of these few will provide a backdrop against which to consider what the essentials of a hearing-conservation program should be. Taken literally, the term *hearing conservation* is a misnomer, for it is much too limited in its implications. The important goals of a hearing-conservation program include detection, prevention of hearing impairment, restoration of useful hearing to persons who have incurred losses, and rehabilitation whenever possible. Fortunately, modern-day medicine has much to contribute to the prevention of hearing loss and to the restoration and conservation of hearing ability.

A comprehensive hearing-conservation program goes much farther. It is concerned not only with conserving hearing but *with the conservation of*

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Dale S. Bingham, consultant, Speech Therapy Services, State Department of Public Instruction, Des Moines.
Paul Chesnut, M.D., private practitioner and member of AAGP, Winterset.
James F. Curtis, Ph.D., head, Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Madelene M. Donnelly, M.D., director, Division of Maternal and Child Health, State Department of Health, Des Moines.
Joseph Giangreco, assistant superintendent, Iowa School for the Deaf, Council Bluffs.
Malcolm Hast, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
William Ickes, Ph.D., director, Des Moines Hearing and Speech Center, Des Moines.
Byron Merkel, M.D., otolaryngologist in private practice and member of Academy of Otolaryngology and Ophthalmology, Des Moines.
William Prather, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City.
Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

the individual who has a hearing problem. It is concerned with conserving his ability to communicate despite his hearing handicap, with reducing the educational handicap of the child who hears less well than his fellows, and with helping each person who suffers from impaired hearing to develop and maintain his maximum potential as a happy, useful, contributing individual.

These, then, are the broad goals of a hearing conservation program. The Committee on the Conservation of Hearing for the State of Iowa functions as an advisory group working for the achievement of these objectives. It finds and recommends appropriate procedures, and helps to coordinate the efforts of various persons and agencies that work directly with hearing problems.

SEVEN STEPS

A comprehensive hearing-conservation program should include the following: (1) public education, (2) adequate case finding, (3) adequate audiological and medical diagnostic examinations, (4) medical and surgical treatment as indicated, (5) adequate audiologic reevaluation and consultation, (6) special educational and reeducational procedures (according to the needs of the individual), and (7) special vocational rehabilitation and guidance.*

Each of these steps is important in the over-all program, although the special significance of each will vary with individual cases. *Public education* can hardly be overstressed. Experience provides ample demonstration of the need for more widespread knowledge and understanding of hearing problems. There is too little recognition of the frequency and seriousness of hearing handicaps, too little recognition of what can be done to prevent hearing impairment, too little understanding of what can be done to reduce the handicapping effects of hearing impairment, and too little information concerning the available sources of help. It is unfortunate but true that this lack of adequate knowledge and understanding is not confined to "the lay public" but includes professional people in the fields of health and education. Most to be deplored is the fact that attempts to institute effective hearing-conservation procedures have sometimes been thwarted, or made less effective, by a lack of understanding on the part of professional people and groups, and particularly by a lack of mutual understanding of the proper and important roles that different professional groups can play in a comprehensive hearing-conservation program.

The need for *adequate case finding* is self-evident. It is to be emphasized that this step is the very crux of the preventive aspects of any hearing-conservation program. It is, perhaps, too little understood that much can be done to prevent permanent loss of hearing, and even to reverse hearing impairment in some cases, provided that the incipient hearing impairment can be detected early enough.

One of the best means of discovering early evidence of hearing impairment consists of the school hearing surveys that are carried on under the supervision of the Division of Special Education of the State Department of Public Instruction. When these surveys are well conducted, they can be a highly valuable part of a hearing-conservation program. Case finding must be coordinated with *adequate diagnostic examinations* and *medical and surgical treatment as indicated.* Only when this coordination is accomplished can the full potential for prevention of hearing handicaps be realized. *Adequate audiologic reevaluation and consultation, special educational and reeducational procedures* (according to the needs of the individual), and *special vocational rehabilitation* and *guidance* are primarily concerned with the measures which can and should be taken to minimize the handicapping effects of a hearing loss which cannot be reversed by medical or surgical treatment. As previously indicated, this is an extremely important phase of hearing conservation, and each of these steps is deserving of much fuller discussion than has been possible in this first article. Each of them will be given more detailed treatment in subsequent discussions to appear on these pages.

THE PHYSICIAN'S RESPONSIBILITY

We do hope that doctors will not feel that because these steps do not involve medical or surgical treatment directly, they are outside of the physician's immediate concern. There will be little argument with the point of view that a physician's obligation to his patient includes getting him to seek the nonmedical habilitative and rehabilitative help that will enable him to realize his maximum potential. To do this, the physician must, of course, have information concerning what can be accomplished by reevaluation, reeducation and rehabilitation, and concerning the agencies to which patients can be referred for such help.

*These seven steps are basically the same as those stated in Hardy, W. G.: Children With Impaired Hearing. Children's Bureau Publication No. 326, 1962.

American Medical Women's Association

The American Medical Women's Association extends an invitation to all women physicians attending the AMA annual meeting in Chicago to be its guests at a brunch on Sunday, June 24, at 11:00 a.m. at the Essex Inn. A panel will discuss the topic "Medical Woman Power: Can It Be Used More Efficiently?" and audience participation will be welcomed.

Those who wish to attend are asked to notify the Association, at 1790 Broadway, New York 19, no later than June 22.

Mental Health

Program of the Woodward State Hospital and School

W. C. WILDBERGER, M.D., Acting Superintendent

One cannot get logically into a discussion of programs or program development for the mentally retarded until or unless he brings basic philosophy to mind. For that reason, I should like to preface the program outline of the Woodward State Hospital and School by making a series of skeleton statements about the basic philosophy that is current there.

1. We are operating on the principle that a child has certain rights—rights to care, maintenance, educational training and medical attention, to name a few. His parents have a responsibility to provide those things to him, sometimes unaided and sometimes with the help of the local community, school district, city, town, township, county or state. For the ordinary child, this philosophy has been practiced, but for the retarded child, it has not been followed.

2. Natural parents have legal rights that they can expect will be implemented for their children's welfare under common and statutory law. With these rights should go some obligations. It is our belief that parents and communities should not present a retarded child to the state with the expectation that since he is handicapped he will be given lifetime care. It is our belief that we at Woodward should take the *problem* of the retarded individual and should help to correct it—to improve, habilitate, treat or manage the individual—for a short, intermediate or moderately long period of time, but that then we should return the individual to his parents, community, job, local special-education class, nursing home, foster home, family, etc. for continuing definitive care, as needed, after he has derived as much benefit as he can from the hospital-school.

3. It is our belief that retarded persons should be salvaged for community living in the natural family home, foster home or family-care home—i.e., in the social unit that will best meet his needs. This salvaging of human beings should go on before admission, after admission, throughout their stay at the institution, and at whatever other time their particular needs and potentials become evident.

4. The retarded person is at least as much a product of what we make him, or let him become, as he is the product of his meager intellectual, neurologic or functional endowment.

5. The financial investments in properly specialized training, education, medical care, habilitation and vocational placement are much more important to these people than monetary grants could be, for with training and habilitation these retarded persons will become, to a degree at least, self-sufficient and productive.

6. Failure to recognize the retarded as people who need multiple orientations and care facilities has tended to push all of them together under one roof, with consequent overcrowding. We now recognize that some of them need hospital schools and others need nursing home care, custodial home care, the facilities that county homes provide, foster homes, family homes, day-care facilities, sheltered workshops, etc.

7. A heterogenous population with heterogenous problems has been proverbial in an institution for the retarded. People with multiple handicaps, by default, have become a large part of the populations of most such institutions because they have fitted into no specialized facility.

8. Overcrowding, long waiting lists, limited quality of service—these historically have characterized public institutions for the retarded. Their resources have been strained to the breaking point by the large numbers of people admitted to them, and attractive salaries for staff members and worthwhile programs for patients have been impossible.

PROGRAMS AND PROGRAM DEVELOPMENT

A crash program of current evaluation and re-evaluation of patients has been started at Woodward. For that purpose, the hospital was divided into four areas and the team approach was adopted. The following were assigned as team members: a

physician, a psychologist, a social worker, an educator (academic or vocational, depending upon the age level of patients in the area), a nurse, a recreation worker, and an attendant. Each such team has its office in a place outside the area with which it is concerned. This arrangement put professionals at once in closer clinical contact with patients in four sub-areas. Improved communication and understanding of patient evaluation and care has come about. Each of the four teams has its responsibilities, and thus both personnel and patients have become actively motivated.

With patients reevaluated currently and seen daily by a representative of each of the disciplines, a dynamic movement toward out-placement began. Admission of new patients followed. The outflow currently exceeds the influx, and as of March 5, 1962, the resident population has been realistically reduced. Everybody has gained. Patients who had been at the institution for long periods of time and whose needs can be met satisfactorily elsewhere have been placed out; those on the waiting list have been admitted; overcrowding has been reduced; and the professional help that the budget allows us to employ can now give more individualized and specialized care, treatment and management to each patient.

A redefinition of patients has been started on the basis of functional levels by age, IQ, physical ability, motivational state, etc. With all factors taken into consideration, the patients can be visualized as on rungs of a ladder, making progressive steps upward as they evolve in age, education, training, etc.

The institution is becoming a therapeutic community in the modern sense. An over-all psychiatric, therapeutic, adjustment, training atmosphere is permeating the whole staff as well as the patients, to the benefit of all concerned. The grounds have taken on the appearance of a dynamic campus. A central dining room was set up for all physically able patients, and consequently the patients have been given a greater opportunity for movement. Boys and girls walk there in good weather, and are transported there and back in busses when the weather is inclement. It is truly remarkable how much this physical activity has stimulated mental activity.

Training has been given a broad interpretation at Woodward State Hospital and School. At the simplest level, *training* means instruction in self-help and thus is psychomedical and neuromuscular. The child who has lain in bed is taught to sit up, stand and walk, the concept being that the more independent the patients can be made, the less attention they will need from the nursing attendants. Physical therapy, nursing care, etc. take the major roles in this part of the program.

The next level of training is the psychosocial. These children, youths and young adults are instructed in the basic human relationships to the level of their respective capabilities through engaging in all types of interaction at all levels. This work is structured through the attendant in ward-living situations of interaction, through formal recreational programs, play-therapy programs conducted by the psychology department, and through arts and crafts.

Psycho-educational training is the next higher level of training, and it is provided for youngsters between six and 18 years of age, who are entitled to an academic education under the American philosophy of public education. The children and youths at Woodward get this training at a school building, just as do children who can stay in their home communities. The Woodward program is structured at the trainable and educable levels, in an educational academic sense, and the youngsters participate in reading, writing and arithmetic classes geared to meet their needs and to coincide with their academic ability. In the Department of Education and Training, at Woodward, there are one pre-school teacher, two kindergarten teachers, two primary teachers (one each for educables and trainables), one intermediate teacher for trainables, one teacher for junior high school trainables, two high school teachers, and one teacher each for the blind, for vocal music, for instrumental music and for speech therapy. Besides, there is a recreation staff of three, a habilitation staff of four, and an arts and crafts staff of seven. Enrollment in the formal school totals 225; in the special therapy classes 302; in vocational rehabilitation 725; and in recreation 592. Of course these groups overlap very considerably.

Psycho-vocational training is the next higher level in the traditional divisions of training. As a youth reaches his academic plateau and is no longer profiting academically, it is our belief that he should be explored vocationally before emotional conflicts arise or trauma occurs. Thus, at 16, 18 or 21 years of age, his innate likes and dislikes and his vocational preferences and potentials are inquired into.

THE HABILITATION LADDER

On the basis of these evaluations, a program of vocational training is then begun. The "habilitation ladder" is as follows:

Rung 5: The fifth rung is the final step in the patient's habilitation program, designed to prepare the patient for placement in the community. He is taught the skills that he will need if he is to get along in a community, such as ordering in a restaurant, riding an escalator, using street numbers and addresses, shopping for his own clothing and many other technics for which he has previously had no need.

Rung 4: The patients on this rung are the ones selected to work within the institution in responsible positions. They are paid $32 per month from our "Patient Support Fund," and they live in separate quarters, eat at the employees' home and go to work as a regular employee does. They are called "training-patient employees," and they require very little supervision. A sub-group on this

rung consists of the "patient employees." These individuals are vocationally oriented for work in supervised situations, but other factors are not particularly favorable for outside placement.

Rung 3: This is the "Habilitation Group." They are higher-functioning, they have completed their schooling either by reaching 18 years of age or by reaching their peak as far as academic training is concerned. Their ages vary from 18 to 40. From them, the "Cadre Workers" will be selected. With proper training and supervision, they will be good workers, but probably will never be able to function outside the institution without supervision. They can be trained to do routine jobs within the institution, and are given salaries of $16 per month in addition to room and board. They have special uniforms, and this type of program gives them motivation, pride in their work, and prestige. Their intelligence quotients may be from 30 to 50 or perhaps even higher, but for some reason or other they are incapable of managing themselves. This rung is a "sheltered workshop" within the institution. Assignment to Rung 3 doesn't necessarily mean that the patient will always remain there. He may be moved up to another rung.

We have subdivided the patients on Rung 3 according to their attainments socially and vocationally. The sub-groups are: (1) "Cadre Trainees." This group is made up of patients showing the higher degree of social and vocational ability. They are assigned to our nursing department. We now have 100 in this group, each receiving the $16 per month that was mentioned above. They work eight hours per day, six days per week, and are allowed a few extra privileges. The cost of this group's keep is not charged to the counties. Cadre trainees live on the same wards, the boys in one area and the girls in another. (2) "Cadre Workers." These are a little less capable than cadre trainees, but are assigned in all areas of the hospital. We have 600 such boys and girls, and each of them receives a $1 to $4 canteen card each month. They live in all sectors of the hospital, and become candidates for promotion to cadre trainees when the necessary improvement has been noted. The money for this group is taken from our Support Fund, which is a portion of our budget.

Rung 2: This group of patients have been promoted from Rung 1. They will need continued school training, work training, and planning and preparation for their climb up the ladder.

Rung 1: These are the low-functional retarded—the pre-school, kindergarten academic group. Also on this rung are the spastics, the cripples, and the mulitply-handicapped retarded who will need special training, medical treatment and recreational planning. There are many of these who will be able to climb the ladder to varying heights.

THE INSTITUTION AND THE OUTSIDE WORLD

Admissions to and discharges from the institution can be dealt with appropriately, to be sure, only in the context provided by the community environment, with its social processes, attitudes and resources.

A good pre-admission program eliminates the waiting list by culling from it the persons who can be cared for just as well or better elsewhere.

A strong release and after-care program gets people out of the institution who no longer need to be there, or who have benefited maximally from the institution's program and would be better off if they were back in their communities.

Since the Code of Iowa places responsibility for the institutional program for the retarded upon the Board of Control, at the state level, and upon the Board of Supervisors, at the county level, we have developed close relationships with the designates of each of those bodies. In some counties we think we have achieved a renewed understanding of county-state functional responsibility in retardation problems.

The community consultant has a master's degree and some experience in social work, and his function is primarily that of strengthening, developing and working with community services. He lives in the community, is a part of the area that he serves, and works closely with the counties in his area, as well as with the Hospital-School.

The major goal is to integrate over-all state services with the active services in the community in a way that will best service the retarded person, his family and the State of Iowa.

The community services program is intended:

a. To strengthen pre-admission, inpatient care and outpatient services, and generally to enrich the community program for the mentally retarded and their families.

b. To stimulate effective cooperation among the social, educational, medical and lay organizations within the communities.

c. To promote the development of basic health, welfare and educational services for the retarded at the local level.

d. To assist in eliminating duplications of services for the retarded.

e. To provide basic casework service, if it is not already available locally, but only on a temporary or demonstration basis.

f. To serve as a link between the institution and the national, state and local Associations for Mentally Retarded Children.

g. To assist in related programs of research, staff-development and in-service training.

CONCLUSION

Until local communities can more adequately meet the needs of retarded persons, it would seem that consultants should continue to work and live in the various parts of the state to encourage the establishment of outpatient pre-care and after-care programs, and to serve as liaison between the institutions and the local workers and officials.

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

CLINICAL PATHOLOGY: APPLICATION AND INTERPRETATION, THIRD EDITION, by *Benjamin B. Wells,* M.D., Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $9.00).

A STUDY OF PSYCHOPHYSICAL METHODS FOR RELIEF OF CHILDBIRTH PAIN, by C. *Lee Buxton,* M.D. (Philadelphia, W. B. Saunders Company, 1962. $4.75).

SHOCK: PATHOGENESIS AND THERAPY (An International Symposium Sponsored by Ciba, in Stockholm, June 27-30, 1961), ed. by *K. D. Bock.* (Berlin, Springer-Verlag, 1962. $13.00).

PHYSICAL DIAGNOSIS, SIXTH EDITION, by *Ralph H. Major,* M.D., and *Mahlon H. Delp,* M.D. (Philadelphia, W. B. Saunders Company, 1962. $7.50).

THE LOWER DIGESTIVE TRACT (Part ii of Volume III in the Ciba Collection of Medical Illustrations), prepared by *Frank H. Netter,* M.D., edited by *Ernst Oppenheimer,* M.D. (Summit, N. J., Ciba Pharmaceuticals Company, 1962. $15.00).

BOOK REVIEWS

A Textbook of Obstetrics, by *Duncan E. Reid,* M.D. (Philadelphia, W. B. Saunders Company, 1962. $18.50).

With the growing mass of literature that is resulting from advances in physiology and chemistry, and with psychosomatic medicine at our door, we need more of the type of text that Reid and his associates have prepared. The new facts and the old that have to do with the practice of obstetrics have been correlated and summarized. This is a text that is especially valuable for the general man and the student who find either their time or their experience does not enable them to read and evaluate even a small amount of the new work that is being done. The detailed bibliography will aid those who wish to pursue any one topic more completely.

This text is surprisingly easy to read, and the author advocates rational and reasonable procedures. He emphasizes that what is regarded as true today may not necessarily be thought true tomorrow. It is unusual that the reader is not asked to follow the so-called "dogmas of a center," but is left free to think and to use his own judgment on the material at hand. I think this is one of the strong points of the book. There is no need for me to enumerate the division titles and the topics discussed. It is enough to say that the volume completely covers the field of obstetrics.

As an older man who is getting a little tired, I find Reid's book excellent. The wording is simple, concise and to-the-point. The author hasn't filled pages when two sentences would tell the story. The tremendous effort and life-long dedication that have gone into this work should be an inspiration to the rest of us in the profession of medicine. In no other field are basic biology and human emotions so interwoven as they are in reproduction. The obstetrician's devotion to the saving of lives is dramatically revealed in this book. May Dr. Reid's example serve as an inspiration to the student and to the practicing physician as they undertake their work!—*J. D. Lutton,* M.D.

General Pathology, Third Edition, ed. by *Sir Howard Florey.* (Philadelphia, W. B. Saunders Company, 1962. $22.00).

This book was never intended to be a complete text on the subject, nor does its editor and authors approach the diseases by organ systems, as is the usual practice for the authors of American texts on pathology. Rather, this volume is intended to present material on certain aspects of disease processes. Accordingly, the chapters bear titles such as "Fever," "Edema," "Thrombosis," "Healing," "Influence of Drugs on the Inflammatory Process" and "Cell and Tissue Reactions to Viruses." Each of the 17 British experts has written on the subject about which he is best informed, and hence the reader is exposed to the dynamics of disease processes in what seems to be clear, concise and authoritative language. Oxford lectures served as the basis for the original text.

A new and, though short, an interesting chapter has been added in the Third Edition. Its title is "Immunology of Tissue Transplants."

The print is easy to read, and the illustrations are very good.

Although somewhat expensive, the text might be of value to the libraries of teaching institutions.—*David Baridon, Jr.,* M.D.

Problems in Surgery (From Surgical Grand Rounds at the New York Hospital-Cornell Medical Center) by *Frank Glenn,* M.D., ed. by *George E. Wantz, Jr.,* M.D. (St. Louis, The C. V. Mosby Company, 1961. $16.50).

This book contains one year's selected cases—152 of them—in all branches of surgery: pulmonary, cardiac, vascular, alimentary, liver, biliary tract and spleen, urologic, neurologic, endocrine, plastic and orthopedic.

Six cases are presented weekly, but duplications and less-interesting cases are eliminated from the studies chosen for publication, and the cases are grouped according to the specialties involved. Cases are presented with histories, examinations, laboratory findings and discussions. The discussants are professors and assistant professors in the various departments concerned—surgery, medicine, pathology, pediatrics, radiology and anesthesiology—and by distin-

guished visiting professors. The treatment and outcome are presented, and failures as well as good results are freely considered. X-rays and pictures are frequent, the cases have been well chosen to cover many diverse problems, and the editor has eliminated superfluous verbiage.

The book is highly recommended for the house staffs of hospitals, and for study or journal clubs. It demonstrates good examination, workup and thought on many cases. The methods could be used as models for local instructional procedures, or the issues raised could be used as the bases for study and argument.

It is unfortunate that the high costs of publishing make this volume a luxury item for the private medical library.—*Anthony H. Kelly,* M.D.

THE MONTEGGIA LESION, by *Jose Luis Bado,* M.D., translated by *Ignacio V. Ponseti,* M.D. (Springfield, Illinois, Charles C Thomas, 1962. $6.75).

Dr. Ponseti and the publishers have done an excellent job in translating and presenting this work by Dr. Bado in a most interesting manner. Dr. Bado had studied a group of 55 "Monteggia" lesions treated at the Institute of Orthopedics and Traumatology in Montivideo, Uruguay. Sixty per cent of these cases were examples of the classical "Monteggia" fracture. Fifteen per cent represented posterior dislocations of the upper end of the radius and fracture of the shaft of the proximal ulna, with posterior angulation. The remainder of the cases were rare injuries of the proximal forearm which Dr. Bado chooses to classify as "Monteggia" lesions.

The chapters concerning the anatomy, physiology and etiology of these fractures are most rewarding. Bado is in agreement with the work of E. M. Evans published in the JOURNAL OF BONE AND JOINT SURGERY concerning the mechanism of injury in the classical "Monteggia" fracture.

On the subject of treatment, there has always been a great deal of disagreement. Dr. Bado apparently follows the teachings of B'oehler and other European surgeons who favor closed reduction for the "Monteggia" fracture, with the elbow flexed and in forced supination. This is a more optimistic point of view than that taught us by Watson-Jones, Speed and Boyd, and DePalma, who feel that open reduction of at least the fractured ulna is usually necessary. The author emphasizes that open reduction of a dislocation of the head of the radius has never been necessary in his experience with the classical "Monteggia" lesion.

In "Monteggia" lesions resulting in a posterior dislocation of the head of the radius and a fracture of the shaft of the ulna with posterior angulation (the so-called "flexion" injury of Watson-Jones), Bado favors closed reduction of the fracture, placing the elbow in some flexion unless the injury is compounded, in which case open reduction is usually employed. This is the fracture that Watson-Jones feels can be successfully treated by closed means, using simple extension of the elbow for reduction and maintenance of reduction.

This book performs the useful service of emphasizing that closed reduction of "Monteggia" fractures is nearly always successful in children, and of pointing out that closed reduction is often effective in adults if the principle of forced supination of the forearm is followed. Several cases in this book emphasize that when the reduction is less than good, or even less than excellent, the result will not be acceptable.—*John H. Kelley,* M.D.

Fumes Claim More Lives Than Do Flames

Few of the 12,000 fire victims in the U. S. each year have actually burned to death; they have been asphyxiated by toxic combustion gases, according to Paul W. Kearney, of West Skohan, N. Y.*

Fire deaths are popularly associated with big blazes, whereas the "smoky stinker" can be as deadly as a roaring blaze. Typically, suffocation is the fate of bed-smokers. About three-fourths of fire victims die in dwellings, and three-fourths of that number die upstairs from a fire that started downstairs, dying in most cases before becoming aware that there is a fire.

Olsen and his associates at Brooklyn Polytechnic Institute discovered nearly 30 years ago that the burning of ordinary household materials generates from 11 to 14 toxic gases in substantial concentrations. Carbon monoxide is always present, but hydrogen sulfide, ammonia and hydrocyanic acid gas are as bad or worse than carbon monoxide. Even though there may not be enough of any of them, their combination can be fatal.

The vital preventive—aside from periodically disposing of refuse accumulations and refraining from smoking in bed—is the planning of a path of escape other than the stairway, for use in case the usual exit is cut off, as it often is.

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* PUBLIC HEALTH REPORTS, **77**:248-249, (Mar.) 1962.

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing on page vii in this issue:

GREEN and RICHMOND—PEDIATRIC DIAGNOSIS
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Iowa Chapter of the American Academy of General Practice

The Fourteenth Annual AAGP Meeting

REX L. MORGAN, M.D.

The Fourteenth Annual AAGP Scientific Assembly is over now, and it will be recorded as the most successful of all AAGP meetings to date. The decision of our national officers to hold the meeting in Las Vegas was a "calculated gamble" for several reasons:

1. Relative inaccessibility, if one considers the entire country
2. Inadequate housing facilities
3. No national medical meeting had ever been held there (an AMA interim meeting had been scheduled there, and then cancelled)
4. The feeling that the public image of the physician would suffer from holding a national meeting in a world-renowned gambling center.

The "calculated gamble" was accepted by these officers with the feeling that the AAGP consists of serious, responsible physicians who would seek entertainment in the evening but would attend the daily meetings. By car, plane and private train, the doctors flocked to the convention hall in record numbers. Three weeks before the meeting, all hotel reservations in the convention city had been sold—for the first time in AAGP history. The total registration was slightly less than 8,000, exceeding the previous high of 7,504, in Philadelphia in 1960. The sessions were well attended, with the 2,800 seats on the first floor of the auditorium filled by 9:00 a.m. each morning and with an overflow into the remaining 6,000 balcony seats—a constant source of wonder to the guest speakers.

The convention hall was extremely impressive, providing seats for 8,000, and 90,000 square feet of floor space for exhibits, and being surrounded by a parking area that would accommodate the entire car population of Las Vegas.

The scientific lectures and discussions were outstanding, with 22 of the nation's renowned authorities covering all phases of practical medicine. The only disappointment was the absence of Melvin N. Belli, LL.B., who was to have spoken on "How to Avoid Malpractice Suits." Mr. Belli was unable to come on account of a last-minute plane delay due to bad weather.

The number of scientific exhibits hit an all-time high of 153, covering many topics such as streptococcal identification, pinworms, thumb-web contractures, neonatal jaundice, ultrasonics, open heart surgery, rabies immunization, scalenus anticus syndrome and central causes of sudden death. In the "new" category, there were exhibits on environmental radiation, a new treatment for alcoholism, new skin wound closures without sutures, and a revelation on excessive height in girls.

The most noteworthy aspects of the meetings, as far as I was concerned, were sensing the warm, friendly atmosphere that pervaded the convention hall, meeting several classmates, making new acquaintances and visiting with our state executive secretary, Mrs. Isabelle Wandling, who was proud of the 88 Iowa doctors in attendance—also a new high. It was a pleasure to meet our state president, Dr. Verne Schlaser, and later to rejoin him at the first convocation luncheon for all of the new physicians who had become active AAGP members during the past year.

The evening entertainment gave a view of Las Vegas quite different from the vague feeling of distrust which many of us had brought with us and which is probably par as regards a famous gambling resort. The food was good, but the prices were higher and the service was not so good as I had found them on a previous visit. The entertainment was outstanding. Where else could one see "The Flower Drum Song," Harry James and the King Sisters in one evening? Dinah Shore was wonderfully relaxed—sitting on a stool singing numbers requested by members of her audience. The Lido de Paree, with its beautiful costuming and waterfall, will long be remembered.

All in all, the Las Vegas meeting was a spectacular success, and it set a goal for future meetings to aim at.

Following the Las Vegas meeting, 300 doctors and their wives went on to Honolulu for a con-

MARK YOUR CALENDAR NOW
SEPTEMBER 12-13, 1962
Fourteenth Annual Scientific Assembly
Iowa Chapter of the AAGP
Hotel Savery
Des Moines

tinuation meeting conducted by Dr. Philip Thorek, a Chicago surgeon who is an entertaining speaker and an excellent teacher. As in Las Vegas, the attendance at the breakfast meetings was remarkable, with over 200 members present for the daily sessions.

We were extremely well pleased and enthusiastic over the Las Vegas and Hawaiian meetings, but we are increasingly enthusiastic about returning home, putting into practice what we learned, and starting to think about the next annual AAGP scientific assembly, to be held in McCormick Place, Chicago, in April, 1963.

No Wonder We're Broke!

Here is what the American taxpayer has given, or lent with little prospect of repayment, since the end of World War II, not to help win the war, remember, but since its *end.*

And if you think these billions were to win friends for decency, keep in mind that $57 billions from a total of $84 billions went to nations that boast of being "neutral." They want our money, but refuse to call themselves our friends or to act like our friends.

WESTERN EUROPE	
Austria	$ 1,170,100,000
Belgium-Luxembourg	1,935,200,000
Denmark	822,200,000
France	9,423,600,000
Germany (Federal Republic)	4,993,900,000
Berlin	127,000,000
Iceland	62,600,000
Ireland	146,200,000
Italy (and Trieste)	5,517,000,000
Netherlands	2,416,000,000
Norway	1,024,500,000
Poland	509,400,000
Portugal	370,600,000
Spain	1,470,300,000
Sweden	108,900,000
United Kingdom	8,668,300,000
Yugoslavia	2,132,400,000
Regional	2,237,300,000
FAR EAST	
Burma	93,900,000
Cambodia	263,600,000
China (Chiang Kai-Shek)	3,894,500,000
Indochina (undistributed)	1,535,000,000
Indonesia	558,000,000
Japan	3,462,500,000
Korea	4,486,600,000
Laos	301,200,000
Malaya	21,800,000
Philippines	1,555,700,000
Thailand	571,800,000
Vietnam	1,895,900,000
Regional	316,100,000
NEAR EAST	
Greece	3,073,500,000
Iran	1,012,500,000
Iraq	65,300,000
Israel	709,100,000
Jordan	230,900,000
Lebanon	86,100,000
Saudi Arabia	46,600,000
Turkey	3,094,900,000
United Arab Republic	295,000,000
Yemen	11,300,000
CENTO	25,200,000
Afghanistan	145,700,000
Ceylon	65,300,000
India	2,383,900,000
Nepal	39,400,000
Pakistan	1,255,700,000
Regional	854,200,000
LATIN AMERICA	
Argentina	460,500,000
Bolivia	191,700,000
Brazil	1,376,500,000
Chile	364,600,000
Colombia	249,500,000
Costa Rica	68,700,000
Cuba	52,000,000
Dominican Republic	8,800,000
Ecuador	84,300,000
El Salvador	10,000,000
Guatemala	117,400,000
Haiti	80,400,000
Honduras	34,900,000
Mexico	600,000,000
Nicaragua	42,500,000
Panama	58,600,000
Paraguay	39,500,000
Peru	334,300,000
Uruguay	72,300,000
Venezuela	73,300,000
West Indies Federation	11,500,000
*Overseas Territories	4,800,000
Regional	111,100,000
AFRICA	
Ethiopia	115,000,000
Ghana	4,000,000
Guinea	3,800,000
Liberia	73,300,000
Libya	154,000,000
Morocco	194,700,000
Nigeria	6,200,000
Somali Republic	9,100,000
Sudan	44,100,000
Tunisia	135,200,000
*Overseas Territories	60,900,000
Regional	21,600,000
Non-regional	3,336,200,000
TOTAL	$84,090,800,000

* "Overseas territories" can be assumed to cover the remaining colonies of European countries.

The source of these figures is the CONGRESSIONAL RECORD.

Iowa Association of Medical Assistants

1962-1963 Officers

Our state president, Miss Margaret Hansen, was born and educated in Davenport. She graduated from Immaculate Conception Academy and attended the Women's Division of St. Ambrose College. She was employed for five years as receptionist, bookkeeper and secretary by Mercy Hospital; for seven years she worked in the office of a Davenport finance company; and prior to 1954, when she began her present employment with Dr. W. Hollander, a Davenport psychiatrist, she was a staff member of the Davenport Psychiatric Hospital. She has served the Scott County Association of Medical Assistants for two years as president, and has also served as its secretary and as the chairman of its Finance Committee. She is a charter member of the Davenport chapter.

Our state vice-president, Mrs. Gladys Knight, is a native of Omaha. She is a high school graduate, and has taken general business courses. At present she is employed by Dr. C. W. Seibert, of Waterloo. Her past employment includes four years as secretary-assistant for an Omaha ear, nose and throat specialist, two years as assistant bookkeeper at Doctors' Hospital, Omaha, and nine months as secretary to Drs. F. H. Entz and R. F. Kruse, of Waterloo. She has served the Black Hawk County Medical Assistants as president, and the state organization as corresponding secretary.

IAMA President

Miss Margaret Hansen

The state president-elect, Mrs. Marjorie Snyder, is from Anamosa. She is a member of the Linn County Association of Medical Assistants, and has served it as vice-president and as president. She has served the State Association as corresponding secretary, editor of the annual BULLETIN, and convention program chairman for 1962. She received her training as a technician from the Northwest Institute of Medical Technology. For the past eight years she has been employed by Drs. J. D. Paul, G. F. Brown and J. L. Bailey, in Anamosa. She has also worked as a technician at Mercy Hospital, Des Moines, and in Dodge City, Kansas.

The state recording secretary, Mrs. Dolores Mallinger, is employed by Dr. E. M. Swanson, a Ft. Dodge ophthalmologist. Her previous employers were the late Drs. A. S. McMillen and L. L. Leighton, also of Ft. Dodge. She is a native of Vincent, Iowa, and received her education in the Ft. Dodge Public Schools and graduated from the Tobin Business College. She is a charter member of the Ft. Dodge chapter of Medical Assistants, and has served it as secretary, president-elect and president. She was the 1962 publicity chairman of IAMA.

The state treasurer is Mrs. Isabelle Kirtley, a graduate of East Des Moines High School. For five years, she was employed as secretary to a former Capital City Commercial College instructor, Mr. G. B. Frost. Thereafter she worked in the same office for 33 years—from 1928 to 1934 with Dr. H. C. Schmitz; from 1934 to 1953 with Dr. B. F. Kilgore and Dr. Schmitz; and since the latter's death in 1953, with Dr. Kilgore. She has been a member of the Des Moines chapter of Medical Assistants for five years, serving as its treasurer, social chairman, publicity chairman and member of its Program Committee.

Past-president Miss Waneta Christensen remains on the Executive Committee of the state organization this year, and will serve as liaison with Abbott Laboratories for a tour of that firm's facilities at Chicago in 1963. She is a registered x-ray technician employed by Drs. M. M. Wicklund, R. W. Blanchard and O. K. Lanich, in Waterloo.

Miss Helen Hughes, a past-president of IAMA and the Iowa City District, was appointed state parliamentarian. She is employed by Dr. Philip McLaughlin, of Coralville.

Mrs. Grace Brock, of Panora, was appointed state historian, a post that she is occupying for the eighth year. She is employed by Drs. C. A. Nicoll and R. J. Peterson, of Panora, and is a member of the Des Moines chapter of IAMA.

Mrs. Jeanne Green, of Davenport, was appointed corresponding secretary. She is a charter member of the Scott County Association, and has served as its president and as co-chairman of its committee for the 1961 IAMA convention, which was held in Davenport. She is employed by Dr. James Bishop.

The delegates to the 1962 convention of the American Association of Medical Assistants, to be held in Detroit in September, are Misses Margaret Hansen and Margaret Burnside, and Mrs. Marjorie Snyder. The alternate delegates are Miss Waneta Christensen and Mesdames Gladys Knight and Dolores Mallinger.

1962 COMPONENT SOCIETY PRESIDENTS

Black Hawk Association—Mrs. Sue Phillips, c/o Dr. T. L. Trunnell, 616 Black Building, Waterloo

Des Moines Chapter—Miss Nancy Hutson, c/o Dr. M. Dubansky, 1055 Fifth Avenue, Des Moines 14

Des Moines County—Mrs. Roberta Beardsley, c/o Dr. Walter C. Friday, Farmers and Merchants National Bank Building, Burlington

Ft. Dodge District—Miss Ardyce Swanson, c/o Dr. Dan S. Egbert, Carver Building, Ft. Dodge

Iowa City District—Miss Gertrude Paulus, c/o Medical Associates, 227 N. Dubuque Street, Iowa City

Jasper-Poweshiek Association—Miss Guylette Morse, c/o Drs. Billingsley, Wright, Ferguson and Moles, 321 E. Third Street North, Newton

Lakes Area—Mrs. Sally Nelson, c/o Dr. Denes S. Farago, Arnolds Park

Linn County Association—Mrs. Alyce Redel, c/o Drs. Wolverton and Sedlacek, 1953 First Avenue S.E., Cedar Rapids

Mason City Association—Mrs. Florence Wagner, c/o Dr. A. J. R. Stueland, Medical Arts Center, Mason City

Oskaloosa District Association—Mrs. Modell Newport, c/o Drs. Collison and Smith, 1225 C Avenue East, Oskaloosa

Scott County Association—Mrs. Marlene Mitchell, c/o Dr. A. W. Boone, 528 Davenport Bank Building, Davenport

Wapello County Association—Miss Mary Kay Evitts, c/o Drs. Emanuel, Ebinger and Wetrick, 203 East Second Street, Ottumwa

Woodbury County Association—Mrs. Marian Clayton, c/o Drs. Harrington, Wagner and Horsley, 401 Davidson Building, Sioux City.

The Doctors' 'Revolt'

In a speech the other day, Labor Secretary Goldberg pleaded for "more light and less heat" on the subject of medical care for the aged.

Well, we certainly second Mr. Goldberg's plea, and we only wish some of his associates would heed it. For a great deal of heat—and very little light—is being supplied by advocates of the Administration plan to provide medical care for the elderly through Social Security.

No one knows how many of the aged actually need financial help with their medical bills. And yet to hear Administration officials talk, you might think they were equipped with precise data, not only on the present problem but on all its future aspects.

Private insurance programs for the elderly are multiplying rapidly, and by 1970 about 90 per cent of the people over 65 are expected to be covered by private plans. But Government spokesmen claim they already can see that the private approach is "clearly inadequate."

A Federal-state medical care program is just getting under way, but Health, Education and Welfare Secretary Ribicoff already has pronounced it a dismal failure.

The only way to attack this unknown problem, the Administration would have us believe, is to provide limited hospital care to everyone covered by Social Security, whether they need financial help or not. And anyone who says this isn't so, the Government officials suggest, must be opposed to providing adequate medical care for our older citizens. In fact, the Democratic National Chairman said not long ago, critics of the Administration plan cause the public to believe they are allied with the John Birch Society.

In this climate of innuendo and invective, it's surely understandable that some of the opponents of the Administration proposal are issuing strong statements of their own. A number of doctors in New Jersey and some other states have declared they won't have anything to do with a Social Security medical plan, though they have stressed that they will continue to provide free medical care to the needy.

This has brought threats of punitive laws and cries that the doctors are violating their Hippocratic Oath. But what it really means is that a number of doctors are demonstrating their concern about the dangers of a compulsory medical plan.

The spokesmen for the Administration are doing little to erase that concern. Only by calm, careful analysis can we ever decide just how big the problem is and, then, what to do about it.

—THE WALL STREET JOURNAL,
Tuesday, May 8, 1962

RIGHT NOW—A Grave Danger is Confronting Each of Us—

SOCIALIZED MEDICINE!

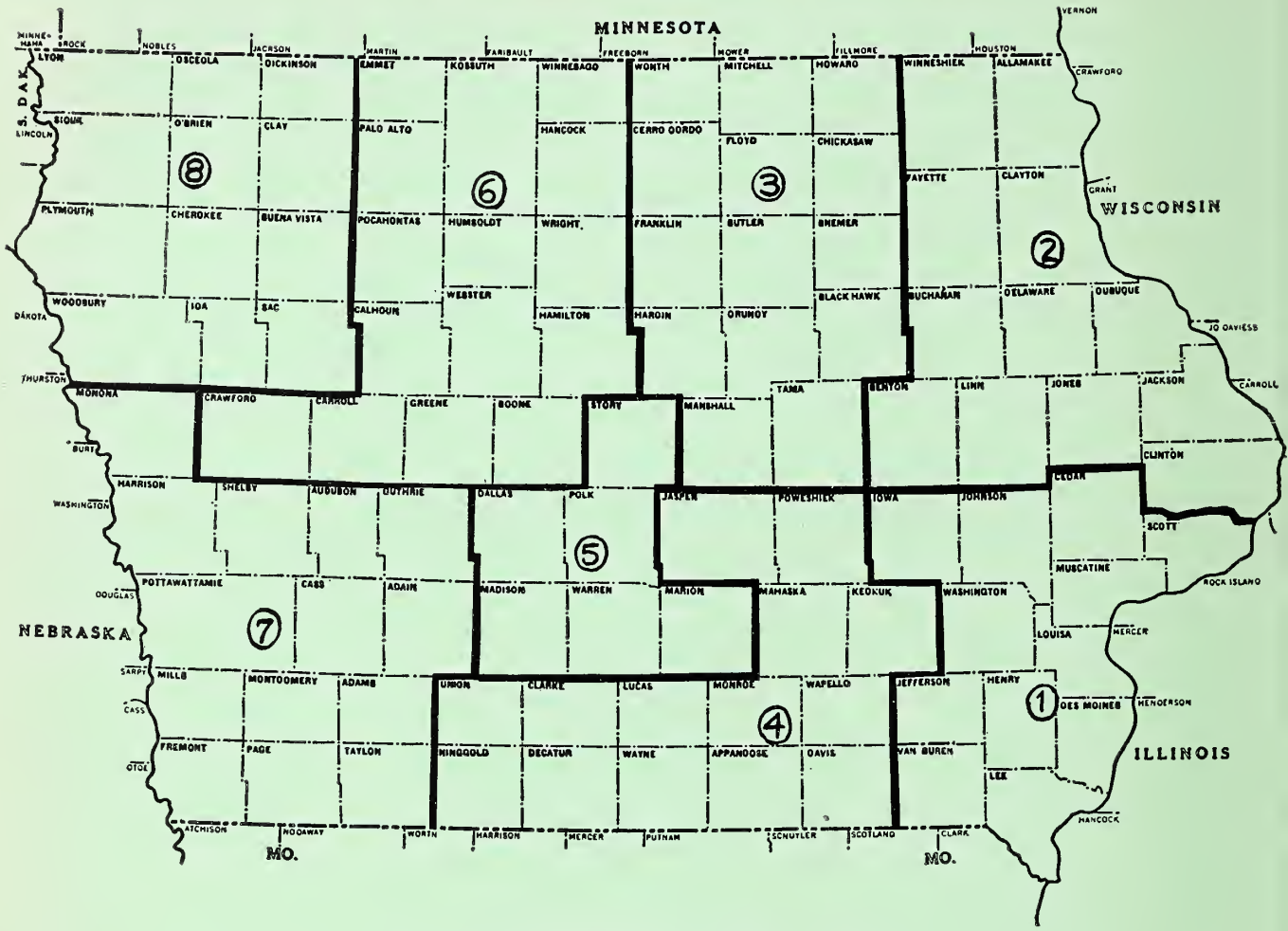
Congressmen have been asked by the Administration to believe that the answer to the health care problems of those over 65 in this country lies in a form of socialized medicine called the King-Anderson Bill.

Here Are The FACTS About The Two "Over 65" Health Care Programs

VOLUNTARY	COMPULSORY
(Kerr-Mills Law—already enacted and ready to go to work)	(King-Anderson Bill—supported by the Administration—a form of socialized medicine)
WHO IS COVERED?	
Any person over 65 *who needs help*, regardless of Social Security eligibility. It permits COMPLETE financing of health care—especially for those with serious, long-term illnesses.	Only those eligible for Social Security benefits. Payment would be essentially for hospital and nursing-home care, with patient paying $10 per day for first nine days in the hospital.
HOW IS ELIGIBILITY DECIDED?	
Tax dollars will be conserved, and overuse of the program will be discouraged through regular financial and medical evaluation of patients' needs at the local level.	Everyone eligible for Social Security benefits would be subsidized, regardless of need. Lack of local control would encourage overuse and abuse of the program.
WHAT IS THE COST?	
On a federal-state matching formula, 42c of each dollar will come from state taxes and 58c from general federal revenue. These funds will finance care for those who actually need help—not the many elderly people who are willing and able to pay their own bills.	The Social Security tax would be raised ¼ of 1% for employees and employers alike and ⅜ of 1% for the self-employed—and the tax base would be raised from $4,800 to $5,200. Even without the King-Anderson Bill, the Social Security tax is scheduled to reach 9% of the first $4,800 of income by 1969.
WHO CONTROLS THE PROGRAM?	
Kerr-Mills is self-restricting in that it finances care on a need basis. Moreover, Iowa lawmakers will maintain close surveillance, since the state must appropriate matching funds each year. Thus, Iowa can tailor its plan to meet the needs of its elderly citizens—and administer it in the best interests of Iowa citizens.	King-Anderson—if enacted—would be controlled from Washington, D. C. Because of politics, both coverage and costs would constantly increase. Its proponents have already said that their ultimate objective is medical care for everyone in the country—regardless of age—under Social Security.
WHICH PLAN IS BEST?	
Before *any* alternative is considered, the Kerr-Mills Act should be given an opportunity to work, for it is far superior to any other proposal that has been offered thus far. An enabling act has been passed in Iowa, and funds should be appropriated to put it into effect. It creates an opportunity for complete understanding and cooperation by all parties involved in health care—governmental, hospital and medical—AT THE PLACE WHERE UNDERSTANDING COUNTS MOST: AT THE LOCAL LEVEL!	The King-Anderson Bill is based on the false assumption that only federal legislation can solve the sociological problems of older people. Rather, the federal government should enter the picture only after the individual, his family, his community and his state have shown that they can't meet an individual need. The King-Anderson Bill—if enacted—would lower the quality of medical care, for government regulations would increase, hospital facilities would be overused and time-honored doctor-patient relations would be disrupted. This proposal strikes at the very foundations of our Democracy!

EXPRESS YOUR OPINION TO OUR NATION'S LAWMAKERS!

Iowa Congressional Districts



U. S. CONGRESSMEN FROM IOWA

First Congressional District—Fred Schwengel (R), Davenport (Scott)
Second Congressional District—James E. Bromwell (R), Cedar Rapids (Linn)
Third Congressional District—H. R. Gross (R), Waterloo (Black Hawk)
Fourth Congressional District—John Kyl (R), Bloomfield (Davis)
Fifth Congressional District—Neal E. Smith (D), R.F.D., Altoona (Polk)
Sixth Congressional District—Merwin Coad (D), Boone (Boone)
Seventh Congressional District—Ben F. Jensen (R), Exira (Audubon)
Eighth Congressional District—Charles B. Hoeven (R), Alton (Sioux)

U. S. SENATORS FROM IOWA

Bourke B. Hickenlooper (R)	Cedar Rapids
Jack Miller (R)	Sioux City

You may wish to address your letter to Congressman Wilbur Mills, chairman of the Ways and Means Committee of the U. S. House of Representatives, and to send the original to him, and copies to both Iowa senators and to the representative from your congressional district.

Letters to congressmen should be addressed to the House Office Building, Washington 25, D. C., and letters to senators should be addressed to the Senate Office Building, Washington 25, D. C.

THE DOCTOR'S BUSINESS

Hedging Against Economic Fluctuations

HOWARD D. BAKER
Waterloo

How can one build up his investment portfolio so as to provide maximum protection against increases and decreases in the value of the dollar?

A combination of two types of investments or contracts will accomplish that goal: fixed-dollar contracts (such things as savings accounts and mortgages having specified or fixed redemption values), and flexible or equity contracts (such things as corporate stocks or real estate having flexible values dependent upon current market prices).

Flexible contracts serve as an inflation hedge, for if prices increase and the purchasing power of the dollar decreases, the market prices of these holdings will rise. The fixed-dollar contracts serve as a hedge against price declines and deflation, for as the purchasing power of the dollar increases and prices go down, the value of these properties will rise.

By maintaining one's investment portfolio approximately at a 50-50 balance, the increased value of one type of contract will offset the decrease in value of the other, thereby maintaining the over-all purchasing power of the plan.

The consensus is that this plan should be followed as one sets up a retirement plan. When the basic plan has been completed and additional funds become available for investment, the hedging feature can be abandoned, but the original portfolio should always be kept in balance.

Cash values of life insurance and the discounted value of accounts receivable (both of which are fixed-dollar properties) should be considered as one determines and maintains the balance between fixed and flexible contracts.

This plan should not be regarded as a perfect hedge, since the market situation of one investment can vary more than another, but the plan is basically sound and is generally accepted as the most suitable economic hedge that can be devised.

A simple example of this plan in operation would consist of $1,000 in savings and loan deposits and $1,000 in good grade common stocks. If a 50 per cent inflation were to occur, the purchasing power of the savings and loan account would be reduced to $500, but the purchasing power of the common stocks would rise to $1,500, resulting in the same total purchasing power as before. If, on the other hand, a 50 per cent deflation were to occur, the common stocks would be worth only $500, but the purchasing power of the savings and loan account would have risen to $1,500, in terms of the dollars originally deposited. Assuming that market fluctuations were exactly equal on all goods, there would be no loss of purchasing power in either inflation or deflation.

Middle States Branch, American Public Health Association

The meeting of the Middle States Branch of the American Public Health Association, at the Radisson Hotel in Minneapolis on June 6-8, has been designated the Walter L. Bierring Memorial Program. Dr. Bierring, who died last summer at the age of 92, was organizer and first president of the Middle States Branch of APHA. Dr. Leonard W. Larson, president of the AMA, is to deliver the principal address.

Dr. James F. Speers, director of the Des Moines-Polk County Health Department, is scheduled to report on the newly-established Des Moines homemaker service, and Mr. Howard Benshoof, formerly head of the vocational rehabilitation division of the Iowa Department of Public Instruction, and now a regional representative for such activities working out of the USPHS office in Kansas City, is to have a part in one of the panel discussions. The Iowans among the officers of the Middle States Branch are Mattie Brass, R.N., and Thelma Luther, R.N., vice-president and secretary-treasurer, respectively. Both are in the Public Health Nursing Division of the Iowa Department of Health.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

STATE DEPARTMENT OF HEALTH

Edward G. Zimmer
COMMISSIONER

Erythema Infectiosum

Each spring since 1957 our attention has been called to communities faced with a mild type of illness somewhat similar to measles. Usually the problem is in the school. The questions most frequently asked about it are:

1. If this isn't measles and since the children aren't really ill, should they be kept from school?
2. If they return to school, should they be sent home every time the rash blossoms out again?
3. If there is a period of exclusion from school, how long should it be?

The onset of illness is marked by a rosy erythema over the cheeks and chin. It extends laterally from the nose to form a butterfly pattern over the cheeks. An appearance of circum-oral pallor is produced. The majority of cases occur in children below 10 years of age, the greater number being in youngsters of the six to nine year age group. The typical case, then, is a six- or seven-year-old youngster who may not feel ill at any time during the course of the disease. At the time the rash appears over his cheeks, he may state that his skin has felt itchy for several days. Almost all of the patients at Wayland (56 cases in a school enrollment of 330) reported an intense itching during the early appearances of the rash. A few youngsters will complain of chilliness, of sleepiness or of tiring easily. The throat, when the rash is developing, will show some reddening around the fauces. The tongue may be magenta in color. Positive laboratory findings are limited to a moderate eosinophilia in two or three per cent of the cases. In Iowa, this was noted particularly in the older patients at Parkersburg.

The rash appears on the body a day or two after making its first appearance on the face. It appears on the forearms, shoulders, throat, lower thighs and legs, and it leaves an erythematous lacework appearance with some faint cyanotic coloring. The later rash stages are marked by periods of temporary recurrence. These may be brought on by exercise, warm baths or even exposure to sunshine. Anything occasioning a sudden temperature change may cause the rash to return. The interval from the earliest appearance of the erythema about the face to the last appearance or recurrence of the rash over the body may vary from seven to 10 or even 14 days.

The great majority of cases diagnosed are in persons under 20 years of age. Of the 58 cases studied at the Wayland School in Henry County, the oldest was 20. In that instance we terminated our studies as the wave of infection was rapidly dwindling in the school. It may be that if we had returned later, we might have found secondary or tertiary cases in older age groups among the family members. This was the situation at Parkersburg, in Butler County. Our study there was begun late. Most of the cases seen were parents of children who had had the illness previously. This older age group ranged from 25 to 54 years of age. Most of those patients complained of soreness and swelling of the wrists, hands, fingers and feet. Some had one or two degrees of fever.

The Parkersburg outbreak, in 1957, was the first to be called to our attention. The second was the Wayland outbreak, in 1959, and it was closely followed by a similar episode in neighboring Washington. We were informed that same year that the infection was also present in Marion and Mahaska Counties, in the same area of the state. In 1960 it appeared in several north-central counties. Thus far in 1962, we have had reports from four counties. The first of them was of the illness in the Dow City-Arion Community School, in Crawford County. We have started an intensive study of the 78 cases there, in a school enrollment of 485. The Donnellson Elementary School, in Lee County, has reported 50 cases. Onawa, in Monona County, has reported 40 cases, and a few cases have appeared in one of the schools at Iowa City, in Johnson County.

Although reports in the literature state that the infection may occur either in the spring or fall, all of our Iowa outbreaks mentioned above have occurred in the late winter or early spring.

This disease, Erythema infectiosum, is primarily a problem in diagnosis. Once the condition has been identified, the problem as it faces a community school is automatically taken care of. Since we know that the disease is seldom more severe than an ordinary common cold, there is no need for keeping the child away from school. Once the school has been given that information, it can return to the "even tenor of its way."

From a strictly public health standpoint, we are further interested in obtaining materials for virus study from certain of these outbreaks. We are certain that the disease is caused by a virus, but to date there still is some doubt that the true virus

of the infection has actually been isolated. For this reason, we are using one of the outbreaks as an area from which to gather a large number of specimens for virus study at the Regional U. S. Public Health Service Communicable Disease Center Laboratories in Kansas City.

REFERENCES

1. Wadlington, W. B.: Erythema infectiosum: report of epidemic. J. Tennessee M.A., 50:1-5, (Jan.) 1957.
2. Condon, F. J.: Erythema infectiosum—report of area-wide outbreak. Am. J. Public Health, 49:528-535, (Apr.) 1959.

Elderly Patients Make Errors in Medication

Elderly, chronically ill patients are likely to make errors in following directions for taking medication, according to Doris R. Schwartz, assistant professor of outpatient nursing, Cornell University-New York Hospital School of Nursing, *et al.** They reported that 179 of their institution's outpatients made 269 such mistakes. Multiple mistakes were the more common, but most of them were not serious.

Patients made potentially serious errors of omission, took medicine not prescribed by their doctors or in the wrong dosage, erred in sequence or timing, or were confused or had inaccurate knowledge about the purpose of the medications.

Surprisingly, the oldest patients were not the most likely to make errors, although those 75 years old and older made more errors than younger patients. Sex apparently had no bearing on proneness to medication errors. Widowed, divorced or separated persons made more errors than those who were single or married, and the proportion of errors was larger among persons who lived alone than among those who lived with one or more other persons.

An unexpectedly large proportion—52 per cent—of patients with high school or higher education made errors in taking medication.

Blindness had less to do with errors than might have been expected. Patients with a large number of secondary diagnoses made more errors than those with few such diagnoses.

Determination of the capacity of each patient to take responsibility for his own medication is of the utmost importance in planning a program of self-administration of drugs by elderly patients, the authors said. They suggested that many errors could be prevented by specific instructions on labels, regular examination of home medication procedures, instructing patients *after* prescriptions have been filled, instead of giving instructions on pieces of paper, all of which present an identical appearance, use of visual aids, requiring new patients to bring in all drugs prescribed for previous illnesses or currently being taken, and employing the public health nurse in clinical planning of medication schedules.

* PUBLIC HEALTH REPORTS, 77:227-228, (Mar.) 1962.

Morbidity Report for Month of April, 1962

Disease	1962 Apr.	1962 Mar.	1961 Apr.	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	348	500	299	Jefferson, Johnson, Kossuth, Polk, Scott
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	2855	2960	1345	Entire state
Whooping cough	2	18	5	Grundy, Jackson
Brucellosis	9	6	22	Polk
Chickenpox	278	315	901	Dubuque, Page, Polk, Pottawattamie, Shelby, Story
Meningococcic meningitis	3	2	0	Webster
Mumps	359	304	850	Clay, Des Moines, Montgomery, Pottawattamie
Poliomyelitis	0	1	1	
Infectious hepatitis	84	115	369	Polk, Pottawattamie, Scott, Wayne, Woodbury
Rabies in animals	40	53	45	Carroll, Clinton, Hardin, Muscatine, O'Brien, Poweshiek, Washington
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	25	31	36	For the state
Syphilis	66	101	111	For the state
Gonorrhea	97	146	97	For the state
Histoplasmosis	3	1	0	Appanoose, Floyd, Lee
Food intoxication	0	4	0	
Meningitis (type unspecified)	0	1	1	
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	0	2	
Salmonellosis	6	3	7	Boone
Tetanus	0	0	1	
Chancroid	0	0	0	
Encephalitis (type unspecified)	0	0	0	
H. influenzal meningitis	0	1	1	
Amebiasis	3	3	1	Boone
Shigellosis	0	1	5	
Influenza	0	508	0	

Woman's Auxiliary News

The Auxiliary's New President

Mrs. Arthur C. Richmond, of Ft. Madison, the newly-installed president of the Woman's Auxiliary to the Iowa Medical Society, has served as president of the North Lee County Woman's Auxiliary and as first vice-president of the State Auxiliary for six months, and then, upon the resignation of the president-elect, Mrs. E. B. Dawson, she was chosen to succeed Mrs. B. F. Kilgore as president.

Mrs. Richmond's husband, Dr. Richmond, is an eye, ear, nose and throat specialist who has practiced at Ft. Madison since 1936. Sue graduated from St. Luke's Hospital School of Nursing, Denver, Colorado. The Richmonds have two children: a son who graduated from S.U.I. in 1960, is now in the U. S. Army at Ft. Leonard Wood, and plans to enter the College of Medicine at S.U.I. next fall, and a daughter who is a senior this year at S.U.I., majoring in mathematics.

Sue Richmond has two interesting hobbies. She collects cut glass and loves to play bridge. She is a member of the Episcopal Church and participates in the work in its various areas. In addition to the Auxiliary, she is active in P.E.O., D.A.R., the Sacred Heart Hospital Guild, and the Rebecca Pollard Study Club.

Tips for Safety

RECREATION SAFETY—PLAYGROUNDS AND GYMS

(About one-fifth of all student accidents during the school year happen on school grounds)

1. Have a supervisor in attendance at all times when grounds and gym facilities are being used.
2. Provide sufficient space for all sports played.
3. Inspect play areas and equipment daily for breakage, broken glass, sticks, wire and sharp stones.
4. Limit each child's participation in sports to his age or capabilities.
5. Maintain close teacher supervision to ensure safe and proper use of all sports equipment.
6. Use approved playground surface—e.g. torpedo sand, gravel, loam, tanbark, limestone screening, grass.
7. Make sure youngsters wear suitable clothing and have proper equipment for specific sports.
8. Store all portable equipment when not in use.
9. Mark off areas for swings, slides and hand bars with white safety lines.
10. Keep first aid equipment on hand at all times.

TRAFFIC SAFETY—CAR MAINTENANCE

1. Have a garage check made on your car at least once a year—oftener, if it's an older model.
2. Keep dashboard and rear seat shelf clear of sharp and heavy objects.
3. Eliminate eye-distracting objects like baby shoes suspended from the rear vision mirror.
4. Make routine car safety check about once a month to make sure that battery, radiator, horn, windshield wiper, rearview mirror, steering wheel, rear red light, numberplate light, directional signals, tires, hand brake, foot brake, exhaust system, oil gauge and headlights are in good operating condition.
5. Have cooling system flushed and anti-freeze put in before freezing weather arrives.
6. Carry complete supplies for an emergency

tire change. Be sure the jack is in good condition.

7. Check muffler and exhaust system periodically to eliminate the hazards of carbon monoxide poisoning.

8. Always carry tire chains, sand and a shovel for winter driving.

9. Be sure heater-defroster is operating properly in winter to avoid interior windshield fogging.

10. Protect your own life and the lives of your passengers by installing seat belts. About half of the 1960 traffic fatalities (nearly 40,000) would have been avoided if seat belts had been used.

Volunteer Health Service Award Winner

Patricia Seely Jacobsen (Mrs. Harold E.), Sioux City, was named the outstanding Volunteer Health Service Award Winner for 1962 at the Annual Meeting of the Woman's Auxiliary. Her name was presented by the Woodbury Sioux Med Dames and the Woodbury County Medical Society.

Mrs. Jacobsen, cited for the depth and diversification of her volunteer service, has concentrated her efforts on the activities of the Siouxland Rehabilitation Center. She has been active in that organization since its inception. As a volunteer worker, she was active for nine years in its nursery school, conducted tours, and in an effort to secure financial support has served in public relations and organizational liaison capacities.

In addition, Mrs. Jacobsen was elected to the Board of the Woodbury County Crippled Children and Adults Society. In 1959 and 1960 she served as president of that organization, compiling a board manual during her tenure, which served as a model for those of other centers, and she supervised a revision of the bylaws. Also during her term of office a $119,000 addition was financed and constructed, including a hydrotherapy wing and department, occupational therapy facilities, and an underground tunnel that connects the Center with the adjacent Methodist Hospital, to facilitate patient transportation. In 1961, Mrs. Jacobsen was the Iowa delegate to the World Congress of Crippled Children and Adults in New York, and is currently active on the board in charge of volunteers.

Mrs. Jacobsen's diversified volunteer work in the fields of health and health education has centered on work with young people. Following the nation's worst polio epidemic, she trouped her original puppet show through the pediatric departments of Sioux City hospitals. Under the auspices of the Junior League, she has been active in arts-and-crafts and personal-grooming programs at St. Anthony's Home for Children, the Boys' and Girls' Home, and the Florence Crittenden, and St. Monica's Homes for Unwed Mothers.

She has been active in P.T.A. and Scouting through her close relationship with her children, serving in various offices as well as girl scout leader of her daughter Holly's troop and den mother for her son Alex's troop.

Mrs. Harold E. Jacobsen, Sioux City

Mrs. Jacobsen is an active member of Trinity Lutheran Church, is a regular Sunday School teacher, and has served as vacation Bible-school superintendent. She has been extremely active in the Junior League in Sioux City, both in administration and in community programs. She is an active member of the Board of Managers, chairing the current Project Finding Committee.

Mrs. Jacobsen studied art at the University of Minnesota, did art work for Dayton's University Store, in Minneapolis, and now uses her artistic skills in connection with her many community activities in Sioux City. She recently created the space puppet that played the title role in "Whizzle," a Junior League science fair television series, and was active in the League's current Book Bandwagon TV program at its inception.

Mrs. Jacobsen has been an active participant in total community programs too numerous to be incorporated in this particular account, but with all these activities the Jacobsens are a very closely-knit family unit. Mr. Harold E. Jacobsen, treasurer of Albertson & Company, is the president-elect of the Iowa Heart Association. Mother Patty, father Harold, daughter Holly, and sons Alex and Andy enjoy many family activities, including boating, swimming, ice skating and other outdoor sports. Mrs. Jacobsen gives unselfishly of her time and talents with the blessing and assistance of her family.

National Auxiliary Convention Chicago, June 25-28

The National Auxiliary Convention will be held in Chicago, Illinois, June 25-28, 1962, with headquarters at the Pick-Congress Hotel, on Michigan Avenue.

Each day of the convention is to be divided in three sections:

(1) An 8:30-9:30 Open Meeting—which will seek to attract all doctors' wives, be they Auxiliary members or the most vaguely interested potential members: Speakers of national fame, subjects important to each doctor and his wife, and coffee will be headlined.

(2) Business Meeting

(3) "The Auxiliary at Work"

Every physician's wife is invited and urged to attend each session, but this subdividing will help the convention-goer whose time for attendance at Auxiliary sessions is limited. This division will enable her to select more easily the presentations that she will find most meaningful.

All official delegates will be expected to attend all sessions pertaining to business and programming. There will be no afternoon meeting on Wednesday, and there will be no Friday meetings.

There are several social activities planned, including teas and luncheons. There is to be a Small Fry and Teen-age Convention Program under the auspices of the Woman's Auxiliary to the American Medical Association—minimum age, five years. This includes tours of the city, with stops at points of interest; a ball game; a visit to the Riverview Amusement Park; a swimming party at Hotel Sheraton-Chicago; a boat excursion; and a special night club tour for students. Young people participating in this program should register as early as possible and should secure tickets and badges.

In Memoriam

Henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous judge, shall give me at that day.—II Timothy 4:8

Mrs. Ralph Selman, Ottumwa

Mrs. Peter W. Beckman, Perry

National Auxiliary Art Exhibit

Pick-Congress Hotel—Shelby Carter Rooms 1962 Convention

An Art Exhibit is being sponsored by the Woman's Auxiliary to the AMA during the 1962 Convention. If you will refer to the entry regulations for your entry in the Art Exhibit at the Iowa Annual Meeting you will be able to determine the types of entries acceptable, since the classifications are identical. The rules are also the same, with the exception that entries will be received from June 18 to 22 and should be labelled as follows for shipping: Woman's Auxiliary to the American Medical Association, Pick-Congress Hotel, 500 S. Michigan Avenue, Chicago 5, Illinois. Attention: Miss Margaret Wolfe, "ART EXHIBIT."

Be sure to show "ART EXHIBIT" on mailing sticker, so package will receive special handling.

All entrants please note: "While every care will be given all entries during handling, storage and showing, entrants will be asked to release the Woman's Auxiliary, the AMA and the Pick-Congress Hotel from liability on loss by fire, theft or damage."

One more item to which we wish to direct your attention is that entrants are requested to arrange for the return of their work/or works after the close of the Exhibit, which will be 5:00 Wednesday, June 27, with no extension of time. All packing and shipping charges are to be borne by the entrants, since the Woman's Auxiliary and the Pick-Congress Hotel accept no responsibility for this service.

Information about the work to be shown should be sent to: Mrs. Silvio DelChicca, chairman, Convention Art Exhibit, 2600 N. Lakeview Avenue, Chicago 14, Illinois.

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—Gray, H. R., Wolf, R. L., and Doneff, R. H.: Evaluation of Flurandrenolone, a New Topical Corticosteroid, Arch. Dermat., *84*:18, 1961.

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JULY, 1962

The incidence of postoperative wound infections, particularly among debilitated patients, presents a serious hospital problem.[1] These infections are caused in many cases by strains of staphylococci resistant to most antibiotics in common use.[1,2,3] In such instances, CHLOROMYCETIN should be considered, since "...the very great majority of the so-called resistant staphylococci are susceptible to its action."[4]

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Precautions: It is essential that adequate blood studies be made during treatment with the drug. While blood studies may detect early peripheral blood changes, such as leukopenia or granulocytopenia, before they become irreversible, such studies cannot be relied upon to detect bone marrow depression prior to development of aplastic anemia.

References: (1) Minchew, B. H., & Cluff, L. E.: *J. Chron. Dis.* **13**:354, 1961. (2) Wallmark, G., & Finland, M.: *Am. J. M. Sc.* **242**:279, 1961. (3) Wallmark, G., & Finland, M.: *J.A.M.A.* **175**:886, 1961. (4) Welch, H., in Welch, H., & Finland, M.: Antibiotic Therapy for Staphylococcal Diseases, New York, Medical Encyclopedia, Inc., 1959, p. 14. (5) Hodgman, J. E.: *Pediat. Clin. North America* **8**:1027, 1961. (6) Bauer, A. W.; Perry, D. M., & Kirby, W. M. M.: *J.A.M.A.* **173**:475, 1960. (7) Petersdorf, R. G., *et al.*: *Arch. Int. Med.* **105**:398, 1960. (8) Goodier, T. E. W., & Parry, W. R.: *Lancet* **1**:356, 1959.

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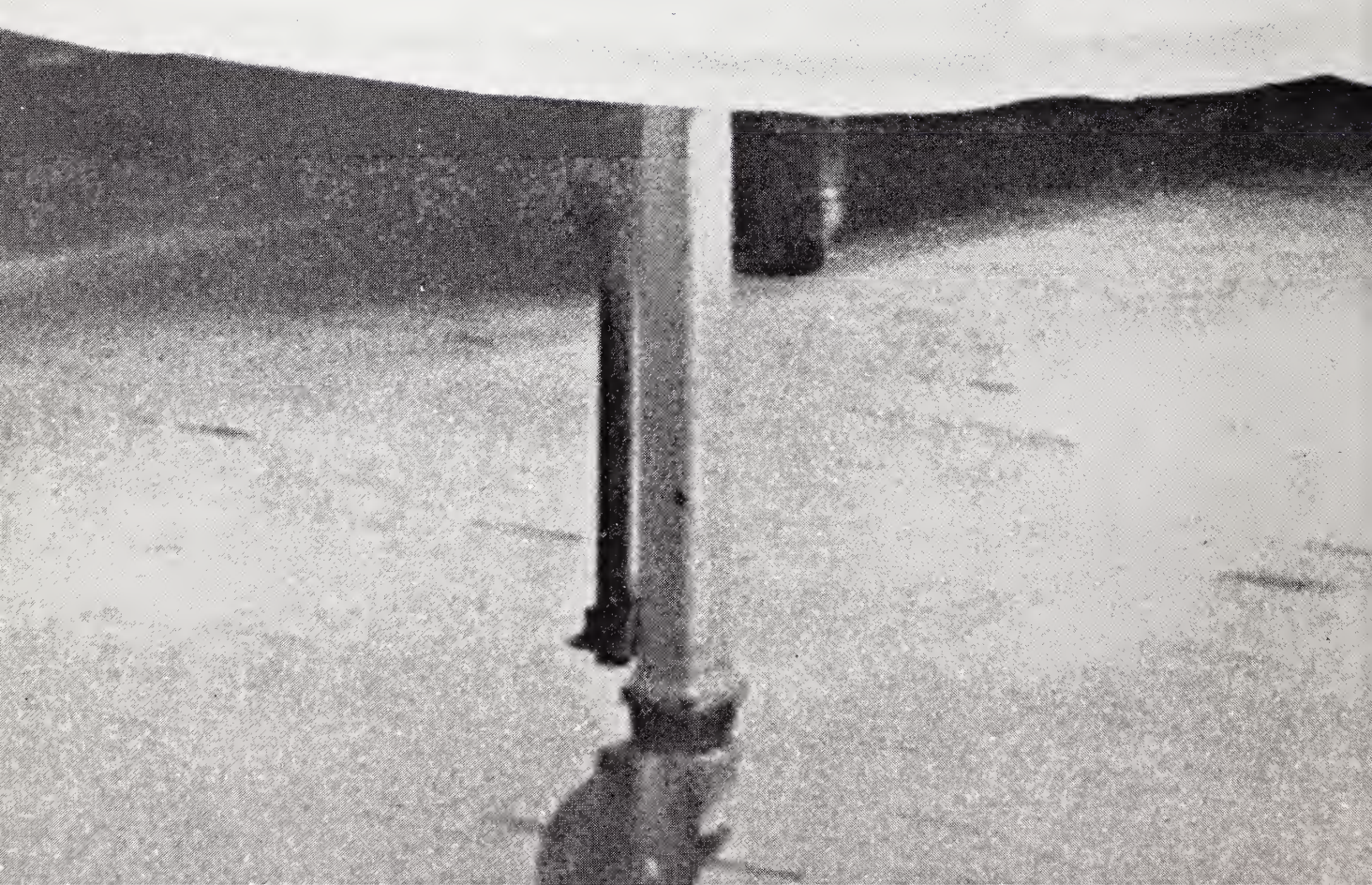

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Vol. LII JULY, 1962 No. 7

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The President's Address

Problems in the Practice of Medicine in Iowa

OTTO N. GLESNE, M.D.
Fort Dodge

At the beginning, I should like to say that I am aware of the rather pungent remark Dr. Anton J. Carlson made when he arose to comment on a paper before the American Physiological Society: "What we need is more dogs, less words." I hope I can be brief and to the point.

At no comparable time throughout the whole history of medicine, can one say there have been so many changes in the practice of medicine as have occurred in the last 50 to 60 years. From the beginning of this century up to the present, there has been a burst of scientific knowledge greater than at any time in the past. Associated with this, and at the same time, there has been a great burst of socioeconomic changes. In 1959, Leo W. Simmons, Ph.D., professor of education at Columbia University, made a list of the problems of a socioeconomic nature that can be said to affect interpersonal and inter-professional relations in medicine: 1. increased mobility of population; 2. increased sophistication of the population, sometimes to the degree that the patient tries to tell you what to do; 3. the general impression that the medical profession has become commercialized; 4. the shift in age composition and prevalence of disease in the population; 5. changes from a religious and philosophical orientation to a scientific attitude toward life; 6. the development of pressure groups within the structure of society.[1]

RECENT CHANGES IN MEDICAL PRACTICE

Within the more specific area of the practice of medicine, but still socioeconomic in character, one might list the following changes. Expansion in the equipment and capital investment necessary to practice medicine has proceeded at such a rapid rate that one can hardly comprehend the magnitude of the increase. For example, at the present time the hospitals are building on the ratio of 650 square feet per bed, and the hospital in the near future will contain 900 to 1,000 square feet per bed, whereas 20 years ago it was thought necessary to provide no more than 250 square feet per bed in order to render all services to the patient.[2]

Another change has been in the increase in specialization, with its natural accompaniment, splitting up of individual responsibility. This increase in specialization, along with the rapid increase in medical and paramedical specialties and their employment in rendering varied types of services to the patient, has subdivided medical care into various areas of responsibility, with a requirement for pay, with a requirement for prestige, and with a resultant feeling that the specialist tends to learn more about less and less in the field of disease.

Another change has been the rapid growth of prepayment plans and group medical plans, and the greater participation not only by government but by various segments of society, as for instance labor, in the provision of medical care.[1]

All of these have resulted in a rather marked state of confusion, to the extent that there has been a profound effect on the medical—professional—patient relationship. The present practicing physician finds himself in a bind. How much time shall he devote to Blue Shield problems? How much time shall he devote to the political aspects of medicine? With politics becoming so much involved in the medical care problem, is not the future of medicine so much affected that he *must* take part in political activity? How much time shall he devote to hospital problems and to the encroachment of the hospital in the practice of medicine? How much time shall he devote to social welfare programs and to the development of care programs attendant thereto? To what degree shall he acquiesce in the establishment of fee schedules? To what degree shall he cooperate with Blue Shield in providing care for those over 65 at a reduced fee? Is it desirable to have government-sponsored care for persons over 65, such as the King-Anderson Bill would provide? Is not the presently-existing Kerr-Mills Law more desirable, even though it is another vendor payment program?

Less socioeconomic, but more within the area of medicine, are such matters as the osteopathic problem; the group practice pharmacy problem; Blue Shield medical relations; relative value fee schedules; the Medical School at the State University of Iowa, and its relationship to the medical

profession in Iowa, to government-sponsored research, and to the medical care needs of the various communities in Iowa; and a whole host of other more or less minor, but nevertheless important questions. The over-all number of questions, the importance of each of them, the slowness of solution, the resulting differences of opinion, the time required to assimilate knowledge, the time required for investigation—all of these finally wear the individual practitioner down to the point where he exclaims, "Oh! if I could just be left alone to practice medicine!"

Unfortunately this cannot be, for these factors and others vitally affect the practice of medicine, and also vitally affect what he, the average individual practitioner in medicine, holds dear.

DOCTORS ARE CONCERNED ABOUT THE ELDERLY—AND ABOUT ALL OTHER GROUPS

With the aforementioned changes in mind, and with a desire to contact as many as possible of the members of the Iowa Medical Society in a personal way and at the grass roots level, I have attended meetings of 45 of the 90 county medical societies in Iowa, and have had informal discussions with the member physicians on many of the questions mentioned above. There are more than 2,200 dues-paying members in the Iowa Medical Society. During these visits I had the opportunity of visiting with a sizeable portion of the membership at their home bases. I should like to summarize some of the impressions I gathered during those visits.

I shall not give you a summary of all areas of discussion, but should like to limit myself to the three areas most frequently discussed and to which more time was given than to the other less-important ones. A large amount of time was devoted to vendor payment, government influence in medicine, and the King-Anderson legislation now before Congress. The large majority of our members—and by this I mean more than 95 per cent of them—resent the gradual intrusion of government into medicine, and medicine's concomitant loss of free-enterprise status.

The degree of willingness to cooperate and the quality of interest in the vendor payment programs such as Old Age Assistance, Aid to Dependent Children, and Aid to the Blind may vary from county to county, but the overall majority of our members are trying to render quality service and care to such people at a reduced fee. Often the medical profession is accused of over-charging in connection with these programs. A bit of statistical evidence that might interest you is the fact that during the month of August, 1961, when there were over 13,000 medical bills submitted to the Board of Social Welfare of Iowa, only five out of these 13,000 statements presented by some 1,000 doctors were referred to the Medical Society for review. Of those five, two had been presented by one individual, and the other three, by three individual practicing physicians. Thus, in that particular month in 1961, less than one-half of one per cent of the practicing physicians who submitted bills could be suspected of over-charging. Even though many of these men who submitted bills did not wholeheartedly approve this type of program, they nevertheless did and do cooperate.

DOCTORS UNITE IN OPPOSING MEDICAL CARE UNDER SOCIAL SECURITY

I can assure you also that the impression I gained was that if socialized medicine in the form of Social Security Tax attached medical care ever becomes a reality, the cooperation will not be anything nearly as good. The addition of care for those over 65, financed by Social Security Tax, as is proposed in the King-Anderson Bill, will be very strongly opposed. I hesitate to give an exact figure, but I can assure you that of the physicians who would be involved, according to the now-existing draft of the King-Anderson Bill, less than 50 per cent would participate by submitting bills to the Social Security Administration for services rendered. At the same time I also can assure you that the aged will be taken care of in any event, even if the doctors have to provide all care gratis.

There is general agreement that the King-Anderson Bill is socialized medicine. There is general agreement that the King-Anderson Bill satisfies the definition of *socialized medicine* in WEBSTER'S NEW COLLEGIATE DICTIONARY: "Administration by an organized group, a state, or a nation of medical and hospital services to suit the needs of all members of a class or classes, or all members of a population, deriving funds from assessment, and taxation." Social Security Tax attached medicine, such as the King-Anderson Bill, would of necessity have to be administered by the Social Security Administration in Washington, with benefits that could be changed frequently by politicians, and/or rules of the Administration. The Social Security structure, as it now stands, has become a political football, with ever-increasing benefits being allowed by each new Congress. This would be true of medical benefits. As proof of this I should like to quote Senator Pat McNamara's Report to the People of Michigan, dated September, 1961,[3] in which he says the following concerning new benefits provided with the passage of PL 87-64 in 1961: "My own view is that even this higher benefit level is pitifully inadequate, and I shall continue to work for further increases in the future." The ultimate end of this type of philosophy would have to be either an increased tax percentage for Social Security purposes, resulting in unbearable Social Security taxes to the employer and employee, or a defunct Social Security Fund that would not even be able to pay benefits out of current income.

The members of the IMS also believe in the following statement from the Jewkes report on the British National Health Service,[4] in light of the 12 years' operation of that program: "The average American now has more medical service than the

average Briton and . . . the gap between the two countries is widening. It is reasonable to suppose that even without a National Health Service, Britain would have enjoyed, after 1948, medical services more ample and better distributed than those which existed before the war."

The members of the IMS object to socialized medicine for other and better-known reasons such as deterioration of medical care; deterioration in the quality and type of young people applying for entrance to our medical schools; and the ever-increasing tendency to centralize control in Washington, with no control at home. Iowa doctors ask the question: "Why tax all employees with low incomes to pay benefits to elderly people regardless of need?" Finally, Iowa doctors believe the proposed King-Anderson Bill would establish a new precedent, in that services rather than money would be provided as benefits, and this is the first time that such would be the case.

There is no question that the majority of the members of the Iowa Medical Society feel that the King-Anderson Bill, if passed, would be a foot in the door, and that further and further attempts to cover more and more segments of society would certainly follow. They are in full agreement with a statement attributed to Anuerin Bevan, who was Minister of Health in Britain in 1950. When asked how he intended to get control of the British Medical Association, Mr. Bevan said: "We have gotten the hospitals, and that means we will control the doctors. They can't practice without places to practice." H.R. 4222, if adopted, would give control of hospitals to the U. S. Government, and Mr. Bevan's words only confirm the AMA's contention that this Bill would open the door for the establishment of federal controls over the practice of medicine.

RAPPORT BETWEEN DOCTORS AND BLUE SHIELD MUST BE PRESERVED

The second topic which consumed a great deal of time at these county medical society meetings was Blue Shield. The opinion was frequently expressed that Blue Shield and Blue Cross sales representatives do not know that Blue Shield was organized by practicing physicians and that its membership still consists of physicians—in other words, that it is the doctors' organization. Much criticism is levelled at Blue Shield because of this departure from the original concept of physician sponsorship, and suggestions have frequently been made by professional as well as non-professional people that practicing physicians should divorce themselves from Blue Shield.

It must be understood, however, that this participating membership consisting of physicians is the one feature that places Blue Shield in an enviable position in relationship to all strictly commercial companies. The advantage consists in Blue Shield's being able to sell to the public full-service contracts, which no other company can do. This was established in the beginning, and it is still the motive for the existence of Blue Shield, namely that the patient shall have the benefit of full service, if and when his income falls within the stated limits.

I think it is highly improper to assume that this benefit to the patient is also a benefit to the practicing physician. If you could have been present and could have heard the amount of criticism that full-service programs evoked from practicing physicians, you would undoubtedly agree that Blue Shield does *not* exist for the benefit of the physician. It is for this reason that a strong relationship exists and should continue to exist in the form of the liaison committee between Blue Shield and the Iowa Medical Society. Take away the full-service contract privilege from Blue Shield, and you would have an organization which would be no better or different from any other insurance company, and Blue Shield would have to be an indemnity company.

Organized medicine started Blue Shield. Organized medicine is the backbone of Blue Shield, and Blue Shield cannot exist without physician support. Therefore, it becomes imperative that efforts should be made by the Iowa Medical Society and by Blue Shield to understand and convey to each other the opinions of the respective organizations through their respective representatives. This will allow for better understanding and better relationships, to the ultimate benefit of the patient-policyholder of Blue Shield. This can best be done through the presently existing liaison committee.

OUR COLLEGE OF MEDICINE SHOULD REEMPHASIZE ITS TEACHING FUNCTIONS

The third and final area of discussion on which I wish to report to you has to do with the Medical School of the State University of Iowa. Dr. Virgil Hancher, president of the State University of Iowa, in an address to service clubs in Iowa City in January of this year stated: "Universities are complex institutions containing professional and graduate programs, whose generally accepted objectives are teaching, research and service. Universities, like other institutions, transmit through teaching the culture and the accumulated knowledge of the race. Universities not only discover new knowledge; they are or should be its disseminators and interpreters." I should like to have you note that Dr. Hancher listed teaching as most important.

Dr. Walter Bauer,[5] in an address at the 150th anniversary of the Karolinska Institute, in Stockholm, Sweden, in 1960, asked the question: "How can medicine care for the sick in its highest humanitarian tradition and at the same time bring to the patient the full weight and authority of modern science?" He also asked the question: "How can we avoid becoming specialists or generalists, and instead become specialists *and* generalists? Is it true that the only ones left to care

for the whole man are humanists, clergymen, and general practitioners?"

In the winter, 1961, issue of the MEDICAL BULLETIN OF THE STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, there is a list of grants that had been given to the College of Medicine during the summer and fall of 1961. There was a total of $677,350 in grants to various departments from the United States Public Health Service. During that time, grants totalling $90,778 were received from various philanthropic associations such as the Iowa Heart Association, the American Cancer Society and others. During the same time there was a total of $49,236 received from industries, including drug companies, the tobacco industry and other organizations. Also during that time a total of $1,690,000 was granted by H.E.W. to be used for construction of a minimal-care unit and a research building. It is true that the total construction costs exceed those amounts, and that the funds are supplemented from state sources. This preponderance of federal funds, however, has raised questions in the minds of many of the members of the Iowa Medical Society. Is it possible that these large donations of government funds may tend to create in the minds of the members of the faculty a rather friendly attitude towards socialization of medicine? Do these large amounts of money devoted to research remove the serendipity of the true research worker? Does the influx of this great amount of money tend to enlarge the resident staff and student staff to the extent that the students and the teachers are not oriented to the needs of the practice of medicine? Does the increase in staff organization and setup tend to remove the heads of departments from teaching activities which logically, and according to Dr. Hancher's statement, should be their primary functions? Which is more important, teaching or research? Is the average student given knowledge of what the medical-care needs are in the communities of the State of Iowa?

Interesting and timely, but too recent to quote extensively, is a J.A.M.A. editorial entitled "Scientism: A New Blight."[6] I strongly recommend that you read it, but I should like to quote one sentence from it: "Medical educators have recently shown some alarm at the progressive increases in research money, since they have, rightly, suspected that their own slim manpower resources are thus being attracted elsewhere."

In a rather interesting report, Drs. White, Williams and Greenberg[7] made the following points: Data from medical care studies in the United States and Great Britain suggest that in a population of 1,000 adults (16 years of age and over), in an average month, 750 will experience an episode of illness, 250 of these will consult a physician, 9 will be hospitalized, 5 will be referred to another physician, and one will be referred to a university medical center. The university medical center sees a biased sample of 13/100 of one per cent of the sick adults and 4/10 of one per cent of the patients in the community, and from that minute sample students of the health professions must get an unrealistic concept of medicine's task at the grass root level. Medical care research, they grant, is necessary and the need for according it at least equal priority with research on disease mechanism is necessary. But they went on to suggest that it is now time for schools of medicine, schools of public health and teaching hospitals to address themselves to the urgent need for medical-care research and education. It is now time for the health professions, and particularly for faculty members with clinical interests, to join their colleagues from other disciplines in according to medical-care research and teaching the same priority that they have accorded research into the fundamental mechanisms of pathologic processes. There is a definite feeling among the physicians practicing in Iowa, be they specialists or general practitioners, that there are a number of departments at the S.U.I. College of Medicine that are not attuned to, or cognizant of, real problems that face the average physician in the various communities of Iowa, be he general practitioner or specialist.

A CONTINUATION-STUDY CENTER IS NEEDED

One of the professors at the State University of Iowa Medical School makes the following statement in an often repeated address: "My theme of the patient down through the long halls of time has some lessons. Care, love, humanity, have always been the leaven which raises hope—the yeast in the bread of life. Science, the ability to see things as they really are, is essential to medicine, but must not displace the grace of love which is quintessential."[8] If the above statement is true, is it not essential that the medical-care needs of the communities, be they rural or urban, should be given more consideration in the teaching of students? And in the postgraduate area, is it not essential for the medical practitioners to have a continuing type of education in order to keep up with advances in research, be they fundamental or more practical? Many members of the Iowa Medical Society have the opinion that a continuation-study center should be built in order that the medical-care needs of the community may be transmitted to the faculty at the medical school, and in order that research and new knowledge may be transmitted by the faculty to the practitioners out in these various communities. The Iowa Medical Society and the State University of Iowa Medical School should work hand in hand towards a common meeting ground in order to understand each other's problems. There should be an opportunity for the faculty to become more interested in medical-care needs, and to dispel the impression often reported at these meetings that I attended, namely, "They're interested only in training specialists." I am sure that the Iowa Medical Society would

welcome such an opportunity, and if given the impression by the faculty that teaching is most important, and that teaching medical care is also important, the members of the State Society would cooperate to a greater extent than has been dreamed possible.

CLINICAL MEDICINE IS STILL MOST IMPORTANT

There should be an attempt by the Medical School to dispel the impression that the faculty is self-sufficient, and need not be concerned about medical-care needs. The physicians in Iowa do not feel that medical-disease research, pure and simple, should be forgotten, but that it should be relegated to its proper perspective in relationship to the medical-care needs of the average practitioner and of his community. Then it might be possible to live up to the advice that Governor Ernest Hollings of South Carolina gave in a commencement address at the Medical School of South Carolina: "Remember the patient. Keep all other demands in perspective. Never stop improving yourself professionally. You must pursue perfection in medicine, and mold your lives after the magnificent men you follow, and the Great Physician whom all men follow. While research has brought us miracle drugs and remarkable recoveries, there will be no discovery which will eliminate the hard work of the doctor. Of all professions, the medical profession still calls for the hardest work. You hold the highest power of public trust. You also hold the greatest of opportunities as a profession to help the nation rid itself of the equivocal man. Your profession stands as a symbol of the finest achievement of American free enterprise. The American medical profession has brought this nation the world's foremost record in medical care and progress. This has been accomplished by the personal efforts of devoted men and women."

REFERENCES

1. Simmons, L. W.: Important sociological issues and implications of scientific activities in medicine, J.A.M.A., **173**:167-171, (May 14) 1960.
2. Cunningham, R. M.: Hospital, doctors and dollars: address to the 29th Annual Assembly of the Medical Society of the District of Columbia.
3. Senator Pat McNamara's "Report to the people of Michigan," Sept. 1961.
4. Jewkes, J. and S.: Genesis of the British National Health Service. J.A.M.A., **179**:215-216, (Jan. 20) 1962.
5. Bauer, W.: Responsibility of the university hospital in synthesis of medicine, science and learning. New England J. Med., **265**:1292-1298, (Dec. 28) 1961.
6. Editorial: Scientism: new blight. J.A.M.A., **180**:155-156, (April 14) 1962.
7. White, K. L., *et al.*: Ecology of medical care. New England J. Med., **265**:885-892, (Nov. 2) 1961.
8. Bean, W. B.: Patient's pilgrimage through medical history. Arch. Int. Med., **180**:548-558, (Oct.) 1961.

President-Elect's Address

GEORGE H. SCANLON, M.D.
Iowa City

BECAUSE OF MY MANY YEARS in organized medicine, most of them spent on your Board of Trustees where one really learns all the problems of our Society, I assume your presidency with a full realization of the serious and complex problems that we face this year. I only hope and pray that my experience will prove fruitful.

I have one advantage over most incoming presidents in that, since the annual meeting is occurring in May rather than in April, I can share with them the honor of holding office, *but* have one month less in which to shoulder the accompanying responsibilities. I have just 11 months to go. Nevertheless, it is quite likely that sometime during my short term, medicine's destiny will be determined.

In his presidential address, Dr. Glesne has pinpointed the many difficulties that confront the Iowa Medical Society, and has brought you up to date on what has been done during the past 13 months to cope with some of them. He has spoken of the past and of the present; I want to talk briefly with you about the future.

MEDICAL CARE FOR THE ELDERLY IS OUR MOST IMMEDIATE CONCERN

I am sure you will agree with me that financing health care for the aged is our foremost and most serious problem. Many bills have been introduced in Congress, and of them, the Kerr-Mills Bill, has already been enacted into law. It is the one measure of which the doctors all wholeheartedly approve. The public and all taxpayers should also approve it for the following reasons:

First: It is a program of federal-state matching funds, and under it the states and local communities determine who really needs help. Who knows better than you or I who really needs help?

Second: We know that under the Kerr-Mills Act, the taxpayers' money is to be used only in helping the needy, and the taxpayer deserves that protection.

Third: The cost will be less in the end, for of every dollar put up for the aged in Iowa, the federal government is to pay 58 cents and our state government is to pay the remaining 42 cents.

Now let's look at the King-Anderson Bill—the proposal backed by the President of the United States.

First: It would all be financed by Social Security, but the sad part of it is that four million of the people past 65 years of age in the United States can't qualify for Social Security benefits and, therefore, wouldn't be eligible. Who would take care of them?

Second: Along with some of the indigent and near-indigent, the King-Anderson proposal would take care of the rich *and* all others who though not affluent, are nevertheless well able to take care of themselves.

Third, the cost: At the outset the Social Security tax on both employers and employees would be raised ¼ of 1 per cent, and the limit on taxable earnings would be raised from $4,800 to $5,200. Do you realize that even without the King-Anderson Bill, the Social Security tax schedule will reach 9 per cent on the first $4,800 by 1969?

In all honesty, the President of the United States and his followers will have to admit that this Bill is nothing more than a political gimmick —a device to get votes rather than a carefully drawn and well considered attempt to help the unfortunates among our fellow citizens. It is a foot-in-the-door maneuver that will quickly lead to the socialization of medicine. The President's ultimate objective, of course, is to concentrate more and more *power* in the federal government. If the above facts are not correct, why does he forget the four million people *not covered* by Social Security? Why does he not accept the Kerr-Mills Act, which is already law and which, as I pointed out, cares for everyone over 65 who really needs help?

Gentlemen, I cannot imagine that our legislators in Washington will acquiesce in such an unfair piece of legislation, if considerable numbers of people support them in opposing the President's wishes. Therefore, it behooves you and me to acquaint *all* of our patients with these facts, and to ask them to express themselves personally to their Congressmen and Senators. Remember, we have a serious handicap—we cannot match the funds of the federal treasury and the prestige of the President.

A KERR-MILLS PROGRAM MUST BE STARTED IN IOWA

It is not enough for us merely to oppose the King-Anderson Bill. Rather, we must present an alternative that will do two things: (1) measure the need for medical aid to the aged, and (2) establish an economical program for meeting the need. In Iowa, we have such an alternative. During the 1961 session of the General Assembly, the IMS and its many allies secured the adoption of the Kerr-Mills Implementation Act, but the reluctance of our legislators to increase taxes, together with their doubts regarding the need for such a program, prevented the passage of an appropriation for it. Following the defeat of the King-Anderson Bill, the obtaining of funds for the implementation of Kerr-Mills must be the number-one objective of the Iowa Medical Society.

Unified action by all who are interested in preserving the private system of medical care will be necessary if we are to convince the General Assembly of Iowa that it should dip into the Iowa treasury to finance health care for the needy aged. *It won't be easy.* As was true in getting the Kerr-Mills Implementation Act onto the books, the IMS will probably have to take the leadership in requesting funds to put the 1961 law into effect.

WE'LL HAVE OTHER PROBLEMS AND PROJECTS

There are many legislative problems that the IMS will have to deal with during the next year, particularly since the Legislature will be in session next spring. These will concern radiation control, tort immunity for physicians offering emergency care, professional corporations, confidentiality of medical records, and other subjects that will no doubt be brought up at the time of the next General Assembly.

As a member of the IMS Board of Trustees for several years, I have been closely associated with the headquarters staff and have been able to observe at first hand the growth that has occurred in the work of our Society. The number of employees has not increased in proportion to the growth in the work load, and frankly, too much is expected of our staff members. I fully realize that, since our income is restricted, and our budget must consequently be limited, we must proceed with caution. However, it sems to me that the least we can do is to provide our staff with adequate room in which to work. I assure you that I shall take a great personal interest in any future plans of the Society to construct a new home office building. I want to assure you at the same time, however, that any plans for a new building will be carefully drawn, and will be acted upon only after proper consultation with the appropriate bodies of the Society.

REORGANIZATION OF IMS COMMITTEES

One other project that I hope to carry out through the Plan and Scope Committee is a study of the structure and activities of the 49 Standing and Special Committees of the IMS. I am particularly interested in determining whether or not the committees are properly coordinated, and that all areas of interest are covered. Some interest has been shown in the establishment of a commission similar to the one which exists in Wisconsin, to serve as a liaison with state and federal departments. If it is determined that such a commission would be the best approach to our relations with these states and federal agencies, it is conceivable that we could bring under such a commission the committees on public health, mental health, automotive safety, etc. I expect to ask the Plan and Scope Committee to begin work at once on the project, and I hope that its study can

be completed in time for a report at the next annual meeting. The changes will be effected, however, only *if* they seem desirable and acceptable to the House of Delegates. If such a plan is adopted, changes may have to be made in the basic organization and rules of the Society, and of course, we would expect to confer about them with the members of the Committee on Articles of Incorporation and By-Laws.

For the reasons just mentioned, only a limited number of changes are being made this year in the personnel of the IMS committees. The lists of appointments have been prepared and will be published in the July issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY.

I hope that when I report to you in April, 1963, it will be with pride that many of our aims have been accomplished.

Certified by the American Board: A Colloquy

GLENN S. ROST, M.D.
Lake City

THE AFTERNOON was cool. The sky was slightly overcast. Thirty-fourth street was all but abandoned, and I had an ideal opportunity to saunter past the remnants of what had been "Old Blockley" in the days when I was associated with the Hospital of the University of Pennsylvania, next door.

But no! There he was again—the same figure I had noted a short time earlier, walking deliberately but purposefully. He was an elderly white-haired man, almost bald but with a rather full and distinctive white mustache, a striped necktie, fine pince-nez glasses, and with—could it be?—pin-striped trousers, a notably long coat and cutaway tails suggestive of a bygone era of aristocracy.

I was first to speak: "Sir, can I assist you?" His penetrating gaze was at first my only answer. Then slowly and deliberately he cleared his throat as though to speak, hesitated again, and then spoke in a sharp, punctilious voice well suited to the man before me.

"Yes. What are these buildings? This is not 'Old Blockley.' What has become of that famous place? Where is the spacious lawn filled with recuperating patients? Where are the soldiers in blue, the nurses, the doctors? Where, my new friend, is Sir William? Where is his 'Dead House'? Perish the name but pay tribute to its function."

Quickly my mind reverted to my old associations with the area. It must be, I thought, that he refers to Sir William Osler and to his famous morgue and autopsy room. He speaks as if he knew Sir William very well. "If by chance you mean Sir William Osler," I answered, "you must surely know that he has been dead for many years."

"Yes, yes, I know," came the impatient reply, "but Sir William and I had a tryst—a tryst to return and meet on this very spot at this very hour, to discover if perchance our teachings and precepts had endured."

"But, Sir—"

"If perchance you see him," he interrupted, "just convey to Sir William that William Stewart Halsted is on time."

I knew then to whom I spoke. This was no seance. We were not spirits meeting in a dream world. No, this was reality—Thirty-fourth and Spruce Street in old Philadelphia. This was the Municipal Hospital—"Old Blockley," it was called, a teaching area enshrined 50 years ago by Dr. Osler's indefatigable energy and enthusiasm. Before me stood a surgeon of Sir William's era, returned to reevaluate a well organized residency training program.

Dr. Halsted turned as though to go, hesitated, and then almost apologetically asked, "Do the general surgeons still think well of my incision and technic for radical mastectomy?" Assured that they still do, he seemed relieved, but he betrayed some concern when I added gently that from time to time the OB-Gyn men have been known to use his incision and technic, feeling that surgery of the breast, since it is performed upon women, should be done under the aegis of their specialty.

"You mean," he countered, "that surgery has been subdivided according to the sex of the patient?" My reply started a discussion of the urologist and the limitations of his field. A canny twinkle appeared in his eye when I said that hypospadias lies within the province of the plastic surgeon. He had heard of materials called "plastics," he said, but had failed to see their usefulness in surgery.

"Plastic surgery," I explained, "is a type of surgical work, rather than a reference to the fact

Dr. Rost presented this paper at the fall meeting of the Iowa Academy of Surgery, in Iowa City, in 1961.

that the materials loosely referred to as plastics are sometimes used in surgery."

Incredulous, my new friend inquired, "Am I to understand that there now is a group of men who do no work other than revision and reconstruction?"

As we approached the steps of Philadelphia's Municipal Hospital, I explained that we now have 19 specialty boards and over 50 specialties and subspecialties, and that since 1930 various programs of certification of ability and training have been in effect. But problems of increasing magnitude have arisen out of jurisdictional disputes in which a hungry or jealous doctor has encroached upon another's domain.

The twinkle in the old man's eye brightened as I pointed out that the obstetrician, though quite capable of caring for the mother and baby through confinement, nowadays becomes incompetent to do so, once the baby is born, and hence a new group known as pediatricians assume command. This is, of course, quite fitting and proper until the child is found to have a congenital anomaly requiring surgery, whereupon the principles of certification require that a pediatric surgeon must take charge. Even the serenity and seeming stability of these well-demarcated jurisdictional lines are quickly shaken when it is discovered that the child is a boy and has an easily diagnosed and common congenital lesion—an elongated foreskin. Alas, who should do the surgery—obstetrician, pediatrician, pediatric surgeon, plastic surgeon? . . . No, the child is Jewish, and all jurisdictional lines must yield to the rabbi's knife!

Sensing the irony of all this, my new friend subtly inquired about surgery of the neck, and laughed aloud when I pointed out that the nose and throat man considers this his domain, that the thoracic surgeon argues it is but an extension of his area, and that the endocrinologist hastens to indicate that at least the thyroid, the parathyroids and the carotid bodies are endocrine in type.

Knowing the fame achieved by Dr. Halsted in the technical management of cancer of the breast, I indicated that at least there the general surgeon is still in charge, but that his domain is rapidly being challenged by a group who deal entirely with tumors and new growths. And though the conflict hasn't yet arisen, one wonders when the thoracic surgeon will claim this field as a part of his domain.

Dr. Halsted asked about the gastrointestinal tract and learned that the thoracic surgeon feels that the esophagus belongs to the thorax, even though it does transport nutritional elements from the mouth to the realm of the gastroenterologist. The proctologist considers the large bowel as only a continuation of the rectum, and therefore his property. When I pointed out that the last remaining stronghold of the general surgeon is again being challenged—this time by a group known as the abdominal surgeons—my friend sorrowfully shook his head and again turned as if to go. Almost as an afterthought, he asked me, "What of the internist? Has his preserve been partitioned too?"

"It has," I replied regretfully, but hastened to add that in many ways the internist is becoming a glorified interne in a higher tax bracket. The present feudal system requires him to complete the preoperative physical clearance for the EENT man, the gynecologist, the general surgeon and the orthopod, but the real diagnostic studies must be done by the cardiologist, the hematologist, the gastroenterologist or a specialist of some other type. This arrangement, I pointed out, leaves the internist an opportunity to diagnose and treat the common cold, provided that it has not occurred in a child under 12 years of age, when it becomes the responsibility of the pediatrician, or in one of his arthritic patients currently being supervised by the referring general practitioner.

The low back pain resulting from a disc syndrome might wind up in orthopedic surgery, where the patient would receive a back fusion, or perchance might find its way to the neurosurgical service, all depending on the fates of that day.

"And," he asked, "what becomes of the man who falls from his horse or carriage and fractures a femur?"

Facetiously, but gently, I pointed out that horses and carriages have been replaced by much more lethal weapons, such as autos, airplanes and jets. "However, in the event of survival," I added, "the rules of specialism require that this patient be transported the necessary miles to an orthopedist. If he is still alive on arrival at the medical center, he will be seen by an internist, who will decide that he doesn't have a cold; by a nose and throat man, who will reduce his fractured nose; by a neurosurgeon, who will supervise his deepening coma; by a thoracic surgeon, who will care for his fractured ribs and lacerated lung, while an anesthesiologist provides him an airway; and the orthopedist, who will place the necessary fixation on or in his fractured femur. Finally, someone will discover that he may have an abdominal injury, and the general surgeon is called. But lo, the general surgeon cannot reach the patient's side because his conferees, the specialists, are there in depth! Who is in charge? No one knows."

The dapper old man turned once more to go, and sadly shaking his head, he spoke softly: "Tell Sir William that I departed, not to return until these men whom you call 'specialists' have acknowledged the unity of the human body."

I perceived a sudden change—the television program was barely discernible. Osler's autobiography had fallen from my lap. It had been a pleasant dream.

Scientific Articles

Medical Civil Defense Are We Prepared?

M. E. ALBERTS, M.D.
Des Moines

FOUR PAPERS APPEAR in this issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY which should serve to stimulate our thoughts in answer to the question, "Are we prepared?" One of the many facets of preparedness for disaster is the problem of radiation. Three of these papers discuss radiation—what it is, and what it can do, and what we can do about it.

Interest in national preparedness waxes and wanes with the climate of international news. Several months ago when international relationships became tense in the Berlin area, great impetus came about to build fallout shelters, to learn more of radioactive fallout, and to stockpile emergency supplies. Then, in a matter of several weeks, fears began to subside, interest waned, and we resumed our casual daily way of life. Other crises will arise, interest will be revived, and the entire cycle will be repeated. But, one fact remains. If world conditions remain much as they are, we cannot totally dismiss the concept of being prepared for an eventuality that we hope will never occur—i.e., actual nuclear warfare. For such a catastrophe would mean mass destruction in many areas of the world.

DOCTORS MUST TAKE THE LEAD

Can we survive a thermonuclear war? Certainly, we can! But, not sitting down. It is particularly important that doctors of medicine be well-informed about the problems of survival and civil defense. As respected members of their communities they can provide advice and example. They understand the importance of prevention of morbidity, and by virtue of their education and experience can exert the necessary leadership. Other countries are prepared. Don't Americans also deserve protection?

The physicians of Iowa can provide leadership in civil defense activities, as well as in mobilization for all other forms of mass-casualty situations. Often pleas such as "too busy" or "don't know anything about it" are offered. The component medical societies are to blame in that they fail to provide initiative and to arouse interest among their members.

HOSPITAL PERSONNEL HAVE EXCEEDED DOCTORS IN THEIR SHOW OF INTEREST

Recently, a questionnaire was sent out to 16 Iowa county medical societies in a particular area of the state. This questionnaire consisted of four simple "yes or no" questions. Six county societies did not bother to answer. Those that did reply showed reasonable interest. The questions and answers were as follows:

1. "Is your present County Medical Civil Defense and Disaster Committee intact?" Yes, 7; No, 3.
2. "Have you met as a group in the past, and if yes, the approximate date?" Yes, 6; No, 4.
3. "Have you set up a plan for handling of any future disaster or emergencies?" Yes, 5; No, 5.
4. "Would you be interested in some type of workshop at a centrally located area to discuss the problems you might have?" Yes, 8; No, 1; No answer given, 1.

Now, this last question is the important one.

Dr. Alberts is chairman of the IMS Committee on Emergency Medical Service, and he served as moderator of the panel discussion on radiation at the medical civil defense conference in Oelwein, Iowa, on November 9, 1961.

If people are not interested, why not? Why does a man accept responsibility for medical civil defense in his community if he has no interest in the problem?

Similar questionnaires were sent at the same time to 21 hospital administrators in the same area. All but one were returned. The answers on these were as follows:

1. "Do you have a disaster medical care plan set up for your hospital?" Yes, 14; No, 6.
2. "Have you carried through a trial run of this plan?" Yes, 5; No, 15.
3. "Have you met in the past with your County Medical Civil Defense and Disaster Committees?" Yes, 10; No, 10.
4. "Has your hospital plan been integrated into the county plan?" Yes, 6; No, 14.
5. "Would you be interested in meeting at a centrally located area and having some type of workshop to familiarize you with any problems you might have on medical civil defense?" Yes, 20; No, 0.

These were very enlightening responses. First, they emphasized the need. Some hospitals have no mass casualty plans at all, and fewer than half of those that do have plans have any real idea of their practicality. Fewer than half have integrated their plans within the community plan. But, all the administrators questioned are interested in learning more.

MORE AREA CONFERENCES CAN AND SHOULD BE HELD

A workshop was held at Oelwein, Iowa, in November, 1961, as a result of these questionnaires, and the meeting proved to be very worthwhile. Dr. D. J. Ottilie, representing the IMS Committee on Emergency Medical Service, did a tremendously fine job on local arrangements for the one-day meeting. The afternoon session consisted of a panel discussion on "The Role of the Health Professions in Civil Defense and Disaster Planning," with members of the allied health professions presenting their views on this provocative subject. Films were shown on "Medical Effects of an Atomic Bomb" and "Management of Mass Casualties." The papers on radiation presented in this issue provided the evening program, which was well attended by physicians, nurses, hospital administrators and representatives of other health professions.

Workshops of this type provide a real stimulus to medical and community leaders to provide protection for the people of their respective communities. More such area workshops are needed, and will be planned. There are many subjects of great importance in the area of mass casualty management which could be discussed.

THE MEDICAL SELF-HELP TRAINING PROGRAM

There is another area of preparedness into which we physicians must enter, and again demonstrate our leadership, encouragement and interest. During recent months, the Medical Self Help Training Program has been launched through the coordinated efforts of the American Medical Association and the Section of Health Mobilization of the U. S. Public Health Service. This program is designed for the general public, and its goal is eventually to train one member of each family in the United States in the basic principles of self-help for survival. The course is in its pilot stage at present, and is being very well accepted at all levels.

Twelve topics are covered in the course:

1. Radioactive Fallout and Shelter
2. Hygiene, Sanitation and Vermin Control
3. Water and Food
4. Shock
5. Bleeding and Bandaging
6. Artificial Respiration
7. Fractures and Splinting
8. Transportation of the Injured
9. Burns
10. Nursing Care of the Sick and Injured
11. Infant and Child Care
12. Emergency Childbirth

Underlying the Medical Self-Help Training Program is the philosophy that "knowledge replaces fear." A person who knows what to do when faced with disaster will act rationally and effectively. The unlearned person will react blindly and ineffectively. The program is designed to give people confidence in their ability to survive, along with skills to make them self-reliant until medical services are again available.

The practicing physician is a key figure in this nationwide training program. He will be asked to advise people in matters of medical self-help, and to provide the professional leadership so necessary for the successful accomplishment of this training program.

The American Medical Association's Report on National Emergency Medical Care states that "it is the responsibility of the medical profession . . . to provide the leadership and guidance that will:

"Provide sound mass casualty planning at all levels of government and at all levels within the professional and health organizations.

"Encourage the population of the United States to engage in individual and collective survival training."

We can be prepared! We can survive! Are you willing to do your share?

Physical Aspects of Radiation

HOWARD B. LATOURETTE, M.D.
Iowa City

All of us have an interest in the fundamental activities of our country and of the people of our world in regard to "War" or "Peace." The degree of our interest varies with time and becomes much more acute as the possibilities of "War" become greater. We are more or less aware that the nature of war has been drastically changed by technologic advances, and that any total war now includes the use of nuclear weapons. As we consider the possibility of nuclear war and of the catastrophic consequences of such a war, we are increasingly interested in the Civil Defense effort and, understandably, attempt to evaluate its potential effectiveness and how it might involve us as individuals.

SOME SERIOUS QUESTIONS

In my opinion, each individual needs to establish his own philosophy on the related issues of war or peace, on foreign policy, on national defense, on civil defense efforts, and on the various shelter programs. To me, it seems unreasonable to separate any one of these issues and attempt to make any judgments regarding it without considering it in relationship to the others.

I find it helpful in trying to develop my own attitude toward these issues to consider the following five generally unanswerable, but provocative queries:

1. **Do I realize how truly catastrophic an all-out war would be?** Radiation and fallout are only two aspects of the massive destruction of life, organizations, countries, even cultures that can result from this type of war.

2. **What do I hold so valuable that in an attempt to preserve it, I would precipitate such a war?** I need to realize that there is a distinct possibility that what I am trying to preserve might well be lost during such an encounter, even though I eventually caused greater destruction than I received.

3. **What specific and active steps can I, as an individual, take to help avoid such a war?**

4. **In spite of any actions that I might take, what are the chances of such a war?** If I were to decide that there was one chance out of two that during the next ten years such a war is going to take place, my life might be quite different from what it would be if I were to decide that the chances were only one in 100.

5. **If such a war does occur, what can I do to improve my chances for survival?** Even though I recognize that the chances are few, can I improve them in any way?

We are all concerned with these questions, whether we realize it or not. In the attempt to gain some insight into them, we need constantly to weigh the vast amount of written and spoken material on these subjects, and to attempt to separate fact from opinion.

THE NATURE AND SOURCES OF RADIATION

In an effort to add to our factual knowledge on one aspect of all-out war, I am to discuss the physical aspects of radiation. Radiation is a form of energy which either is particulate in nature or is electromagnetic. Electromagnetic radiation includes radio waves, light, x-rays, and gamma rays which are emitted by radioactive nuclei. Under certain conditions, either type of radiation can cause changes in tissues, including death. The changes in tissues depend upon the type of radiation, the amount of radiation, and at what rate it is absorbed.

Considerable factual knowledge has been accumulated regarding the effects of radiation upon man. One of the chief sources of radiation that affects man, either in peacetime or in time of nuclear war, is that which is associated with radioactivity. This is a process by which certain atomic nuclei, which are unstable because of the imbalance of the forces within the nucleus, emit radiation, either particulate or electromagnetic. The emission of this radiation is associated with a reorganization of the nucleus, and it continues in sudden steps until a stable, permanent state is reached. All elements occurring in nature having atomic nuclei that are very heavy and contain many protons and neutrons are radioactive. Uranium and radium are examples of naturally-occurring radioactive elements. Since the development of nuclear reactors and of the capability of bombarding any atomic nucleus with neutrons, all known elements have been made radioactive. All of the more common elements with lower atomic numbers, then, may be either stable or radioactive.

Dr. Latourette, professor of radiology, State University of Iowa, made this presentation at the Conference on Medical Civil Defense held at Oelwein on November 9, 1961.

These various states of an element are spoken of as isotopes. Each radioactive isotope of a given element, and there may be more than one, has a characteristic pattern of decay, or process of reorganization of its nucleus. The energy of the emitted radiation and the period of time necessary for half of its atoms to go through the sudden step of reorganization are so specific that they can be used to identify the isotope. The time that half of the atoms take to go through this reorganization is spoken of as the half-life of the isotope. It may be a fraction of a second for some isotopes, or millions of years for others. The half-life is a statistical concept, and averages the time of sudden changes in individual atoms.

The emitted radiation from a radioactive nucleus may consist of alpha particles, beta particles or gamma rays, the characteristics of which are presented in Table 1.

TABLE 1

RADIATION EMITTED FROM A RADIOACTIVE NUCLEUS

	Description	Range in Tissue	Absorbed by
1. Alpha particle	relatively heavy particle (Helium nucleus)	few microns	few sheets paper
2. Beta particle	relatively light particle (electron)	1-2 mm.	thin magazine
3. Gamma ray	E-M radiation (no mass)	1 meter	4-6" lead or 3' packed earth

Usually, a radioactive nucleus emits either an alpha particle or a beta particle at any one step, and the particle may or may not be associated with a gamma ray. Once an atomic nucleus becomes radioactive, the process of decay or reorganization of individual atoms proceeds at its characteristic rate regardless of any physical or chemical change in which the atom is involved.

When considering the biologic effects of radiation—that is, the changes that radiation produces in living tissues—one should recognize that man cannot sense or distinguish the type of radiation that will penetrate into his body and cause damage. Actually, light and heat, which can be detected by our senses, compose only a minor portion of the spectrum of E-M radiation. Therefore, in any work with radiation man has to depend upon instruments to detect and measure the radiation.

FACTORS DETERMINING NUCLEAR INJURIES

The atomic bomb of the type used in World War II released a portion of the tremendous forces within the atomic nucleus by the process of fission. The vast amount of energy released depended in part upon the size of the bomb, and is of several types:

1. Blast
2. Thermal
3. Initial Radiation
4. Residual Radiation

Without going into a detailed discussion of the phenomenology of the bomb, it can be stated that the effectiveness of this type of bomb depended upon its size and its place of detonation. The areas that might be affected by the blast, by the thermal energy, and by the initial radiation were graphically demonstrated in the experiences of the two Japanese cities over which the A-bomb was detonated at about a half mile in the air. At that height, the fireball did not touch the ground. The initial radiation was that released directly in the process of fission and included the release of neutrons. From a practical standpoint, the initial radiation did not greatly affect people who were outside the range of the blast and heat effects.

The fission process depends upon the violent disruption of certain atoms. These atoms break roughly in half, and these fragments become other elements which are radioactive. The fission products, then, are a whole series of radioactive elements—perhaps 30 or 40 in number. Each of these elements goes through its decay process. These fission products are carried up in the fireball and cloud of the explosion. The dropping back to earth, or descent, of these radioactive elements is known as "fallout." Its significance depends upon several factors, but in general there is little fallout produced by an A-bomb. There was no significant fallout associated with the use of A-bombs in Japan.

The development of the H-bomb or thermonuclear device has changed our whole concept of destructive and devastating power. This type of bomb utilizes the A-bomb as a triggering device for the process of nuclear fusion. Theoretically, there does not seem to be any limit to the size of this type of weapon. This process releases energy that produces the same effects as the A-bomb, but in vastly greater amounts. The amount of radioactive material produced depends upon the structure of the bomb, but may be very great. The area of destruction from blast and heat effects depends upon the size of the bomb, and the height at which it is detonated. It is apparently possible to cause almost total destruction over an area 20-40 miles in diameter, and perhaps to cause fires over an area 50-80 miles in diameter. If the large fireball associated with the explosion of this type of bomb touches the earth, tons of debris, dust and vaporized earth and rock may be sucked up into the mushroom cloud and carried up many thousands of feet. The radioactive fission products produced by the bomb become attached to these dust and heavier particles. The fallout of these various sized particles and the attached radioactive ele-

ments from this type of bomb may be of great significance in producing casualties over large areas.

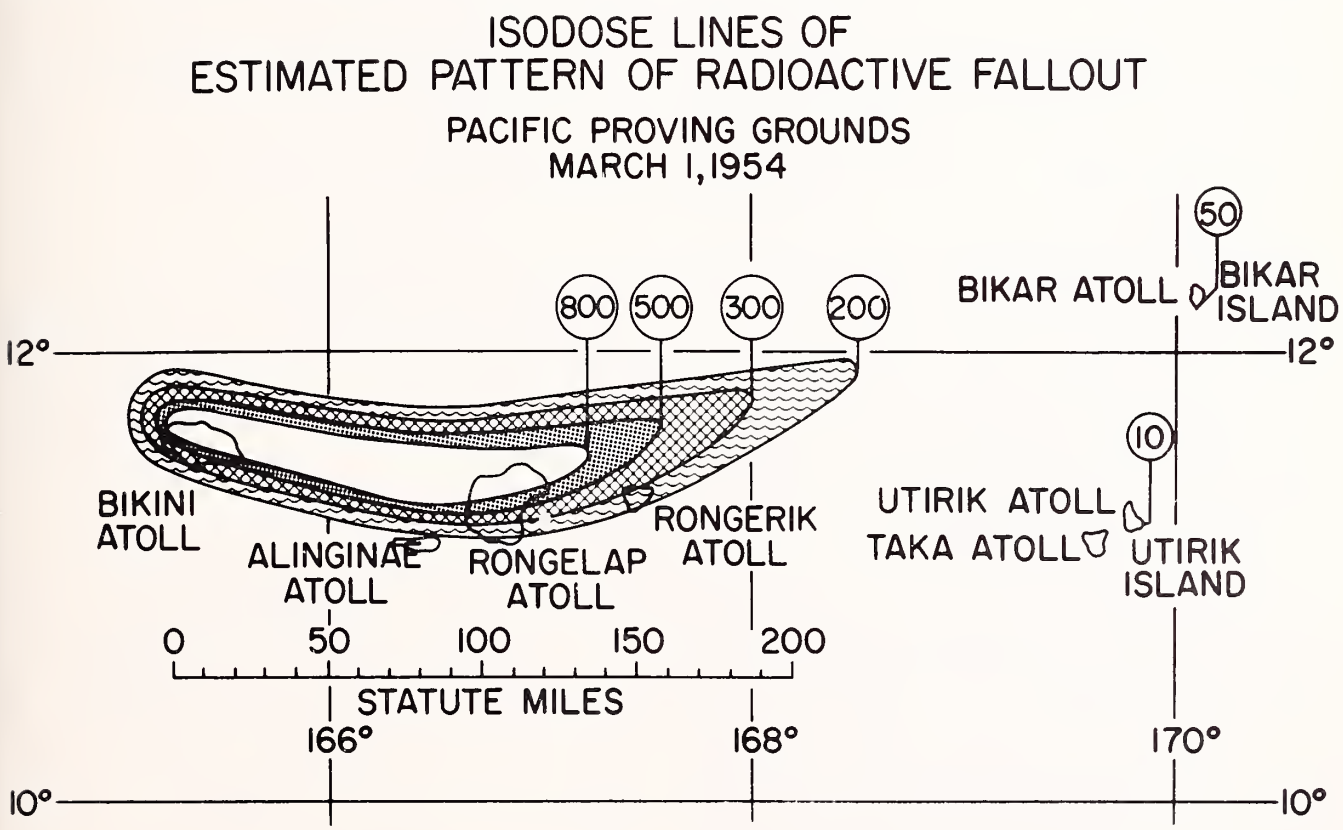
The pattern of this fallout depends upon several factors and can be predicted only reasonably well at any specific time. The size of the bomb and the height at which it is detonated are of utmost importance in determining the quality and pattern of the fallout. The Russians have recently tested some very large weapons. Probably these were detonated 20-40 miles above the earth, and the fireball never touched the earth. Thus the radioactive material was dispersed in fine particles in the layers of space outside our usable atmosphere. There seems to be little exchange between these layers of space and outer atmosphere except during violent storms over the poles. Therefore, the radioactive material is still not falling back to the earth, but decaying out in space. It was thought that following the storms of winter, which might involve the layers of space, some of the longer half-life elements might be brought back to the earth by spring rains.

If the fireball of an H-bomb touches the earth and sucks up earth particles, dust and vaporized rock, this material becomes attached to the radioactive elements and is carried up toward 100,000 feet. The fallout from such a cloud then depends upon the size of the particles, and the strength and direction of the wind at various levels in the stratosphere.

We have some available factual data on the patterns of fallout. These are the data regarding weapons testing. The monitoring of radioactivity in the air following the Russian detonations is done over much of the northern hemisphere. The various monitoring stations across this country, including the one at Iowa City, reported abrupt increases in the amount of radioactivity at various numbers of days after the Russian detonations. Although the amount of radioactivity involved was very small, the increase and rapid drop back toward previous, natural levels could be detected and studied. The elevated levels lasted for only a few days. The elements involved are being determined, but did include Strontium 90, Iodine 131, and Cesium 137. Each of these elements may be ingested in various ways by human beings, and conceivably could produce some changes.

FINDINGS IN THE MARSHALL ISLANDS

One of the most graphic and extensively-studied episodes of fallout and its potential hazards occurred during a U. S. test in 1954 in the Marshall Islands. We detonated an H-bomb of about 12-15 megatons on a tower over Bikini. The meteorologic



CULMULATIVE 48 HRS., WITHOUT SHIELDING

Figure 1

conditions at the upper levels of the atmosphere were somewhat different from what had been anticipated, so that the cloud associated with the bomb was carried down-wind over some occupied islands. On Rongelap, an island 120 miles down-wind, there were 64 natives. Approximately five hours after the detonation, a fine snow-like material started to settle down on the island. This material was made up of vaporized coral rock and contained a variety of radioactive elements. Since the natives were outside their thatched huts much of the time, some of this dust settled down on their skin. The beta radiation from the radioactive dust produced skin reactions upon the exposed surfaces. The reaction included superficial ulcerations and loss of hair. The ulcerations later healed uneventfully. In addition to the skin reactions, each of the 64 natives received about 175 r. to all the tissues of his body from the bath of gamma rays created by the layer of radioactive dust. This type of exposure is known as total body radiation and affects particularly the gastrointestinal tract, the hematopoetic tissues and the gonads. The natives received this dose of radiation in the 50-hour period from the time of the start of the fallout until they were evacuated from their island. Since they had no significant protection from radiation upon their island—no fallout shelters—they probably would have received enough radiation, if they had not been evacuated, so that some of them would have died. It is estimated that if these natives, or any other group of human beings, received 400 r. of total body radiation, about half of them would die. This group of natives have been extensively studied and carefully followed. All of them had some changes in blood count and have experienced some symptoms, but all have recovered and a few have had children since that time.

The pattern of fallout from this test detonation on Bikini was quite accurately estimated, and is shown in Figure 1.* The isodose lines show the areas of various dose levels. The elongated oval shape is produced by the prevailing winds at various heights blowing at that particular time. Dose levels that might well have caused death if there had been no evacuation or shielding existed over several thousand square miles.

IOWA'S PROBLEM

This type of information has been applied to the spread of fallout from likely target sites across our country. Many assumptions have to be made in this type of prediction. In all-out nuclear war, it would have to be assumed that most of the target areas would be completely destroyed and that most of the occupants of those cities and areas would be killed, regardless of the type of shelters available. In these areas, only the deepest type of tunnel or underground cavern would provide partial protection from the blast effect and might well fail to provide protection from the extensive fire that would follow. However, outside the target areas fallout could be the most damaging agent and could produce many casualties if not detected and protected against. Figure 2 illustrates the possible extent of fallout across our state from a detonation over the Omaha area, the location of Strategic Air Command headquarters and several missile bases. Again, many assumptions are necessary in making even this rough estimate, but it is conceivable that this could be the situation. Knowledge of the size and shape of the area of fallout and of the dose rates would be essential in any organized attempt to advise people in the involved area about the best measures to take to increase their chances for survival.

There are two general factors that one must consider in trying to reduce the effects of fallout. These are the rate of decay of the radioactive material and the protective shielding. It is estimated that the mixture of fission products decays according to the scheme shown in Table 2.

TABLE 2

DECAY OF FISSION PRODUCTS

Time After H Hour	Dose Rate
H Hour	1,000 r./hr.
H + 7 hrs.	100
H + 49 hrs.	10
H + 14 days	1

If a person can be protected or shielded from the radiation for even a two-day period, the amount of radiation will have fallen by a factor of 100. Of course, the dose rate at the start, or just after maximum contamination, is the determining value. If this were ten times that shown in the chart, the

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* Cronkite, E. P., Bond, V. P., and Dunham, C. L., eds: Some Effects of Ionizing Radiation on Human Beings: a Report on the Marshallese and Americans Accidentally Exposed to Radiation from Fallout and a Discussion of Radiation Injury in the Human Being. Washington D. C., U. S. Atomic Energy Commission, July, 1956.

dose rate after two days would still be relatively high, and cumulative exposure of over two hours would produce serious symptoms and perhaps permanent damage.

In addition to the factor of decay, the factor of shielding is important in reducing the amount of radiation that reaches a person. Here again the original dose rate is the determining value. Various thicknesses of material such as concrete or packed earth will reduce the amount of radiation by a certain factor. A home shelter in a basement may reduce the amount of radiation by a factor of 50, whereas a deep community shelter might reduce the radiation by a factor of several hundred.

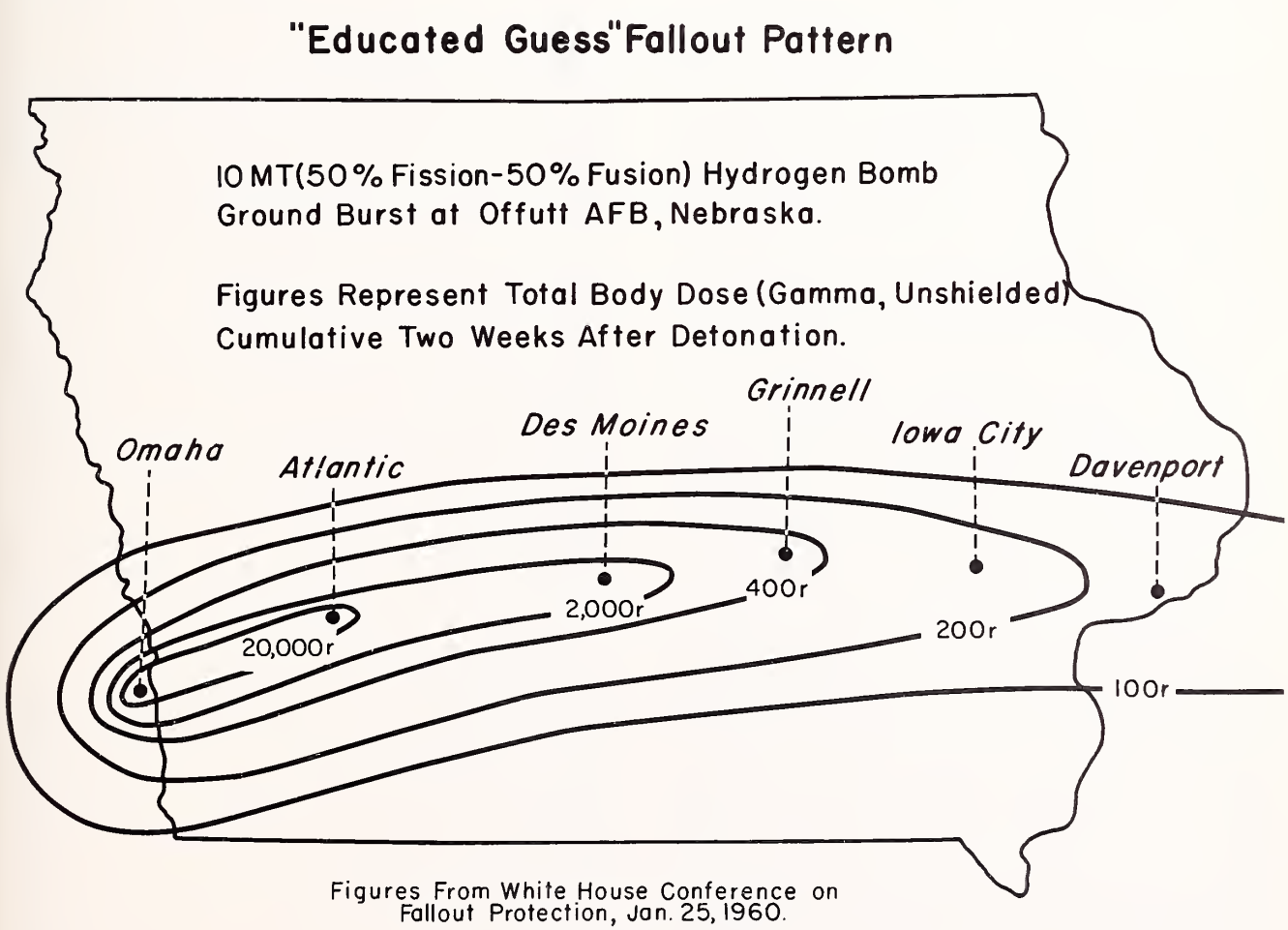
CONCLUSION

In consideration of this information, it seems apparent to me that under certain circumstances, in certain locations, fallout shelters might be very valuable and make the difference between life and death for the occupants. However, it should be noted that our present estimates of the value of fallout shelters are predicated on our current understanding of technologic developments, and that within 5 or 10 more years they may again need to be completely revised.

We have considered only the radiation aspects of nuclear war and barely mentioned the other devastating effects of nuclear weapons. We have not mentioned the possible use of other classes of damaging and lethal agents such as might be expected in bacteriologic and chemical warfare. We have only alluded to the complete disruption of our society and the complex organizations that produce and distribute the goods and services we now take for granted. We have not considered the long-range effects of the long-half-life radioisotopes.

If one recognizes the magnitude of the death rate, of the damage, of the disruption of our society, as we now know it, then the role of civil defense and the value of shelters can be more accurately evaluated.

Personally, I am developing a profound awe and horror of the catastrophic nature of all-out nuclear war. I feel that a civil defense effort can be of some value in helping to improve the limited chances of survival for the fortunate who escape the immediate effects of the nuclear weapons. I still believe that the human race will go on in spite of an all-out war, but it will have a very different existence from that which we now enjoy.



Figures From White House Conference on Fallout Protection, Jan. 25, 1960.

Figure 2

Radiation Pathology

HAROLD E. RESINGER, M.D.
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The effects of the explosion of an atomic or hydrogen weapon can be divided into two broad categories, viz: the direct and the indirect effects. The direct effects include injuries to the body caused by the sudden changes in atmospheric pressure, flash burns due to the intense heat that is produced for a fraction of second at the instant of detonation and, finally, the effects of subsequent exposure to ionizing radiation resulting from the blast. It has been observed that the indirect effects of such an explosion, which will be discussed later, account for more deaths, and more violent deaths, than do the direct effects alone.

DIRECT INJURIES

Contrary to what is generally believed, the direct injuries from the blast itself are slight as compared with those produced by the blasts of conventional high explosives. The detonation of a conventional explosive renders a hammerlike blow by means of a sudden change in atmospheric pressure, whereas the blast from an atom bomb explosion has been likened to a sudden violent gust of air which lasts for a brief but appreciable period of time. It would appear, then, that the peak change in atmospheric pressure is achieved rapidly in cases of blasts due to conventional high explosives, but more slowly and gradually in those due to the atom bomb. This difference, then, would explain the much lower incidence of ruptured eardrum in persons exposed to the atomic bomb blasts in Japan, as compared to the known relatively-high incidence of ruptured eardrum in persons who have been in close proximity to conventional blasts. It was found in the Nagasaki and Hiroshima blasts that the incidence of ruptured eardrums, even in those who were within 1,000 yards of the hypocenter (the point on the ground directly beneath the blast) was only one to two per cent.

During the Japanese explosions the blast hurled a few persons forcibly against solid objects. This phenomenon, however, must be considered as an indirect effect of the blast, since the blast, *per se*, did not cause the resulting injuries even though it predisposed the victims to them.

The "flash" burns resulting from an atomic explosion were due to exposure to the radiant energy produced by the bomb, which like other forms of radiant energy, travels in straight lines. For this reason, only those body surfaces which were directly exposed to the radiation suffered burns, and intervening objects cast "shadows." The radiant energy of the atom bomb had a spectrum resembling that of the sun and existed only for a brief interval. The magnitude of this energy was such as to cause crazing and fragmentation of the surface of granite within several hundred yards of the hypocenter. This effect was due to unequal expansion of the granite, and it has been estimated that a temperature of at least 3,600° F. is necessary to produce this effect.

Since radiant energy varies inversely as the square of the distance, it will be seen that the distance from the point of explosion will be of prime significance insofar as the degree of tissue damage is concerned. Clothing will offer some protection from the flash burns beyond a certain point, depending on the energy released by the explosion, but dark areas in patterned cloth absorb more heat than light areas do, and in some cases the same pattern is seen in skin burns as was present in the cloth immediately overlying the skin. The skin changes due to the flash burns are variable, depending on the distance from the explosion, and the quality and quantity of protection provided by intervening objects, including clothing. In the Japanese bombings, burns were fatal in 95 per cent of individuals within 1,200 yards of the hypocenter. The severe burns produced complete dermal destruction. Less-severe burns ranged from second degree to erythema, depigmentation and, in those farthest from the blast, intense pigmentation resembling severe sunburn.

The damage produced by ionizing radiation in an atomic blast has two different sources, viz: exposure to those ionizing radiations emitted at the instant of detonation and for a few seconds thereafter, and exposure to those radiations resulting from fallout. At the instant of detonation, gamma rays, neutrons, beta particles and alpha particles are released. Also some radioactive fission products may be emitted, and possibly some of the unexploded radioactive substance of the bomb itself. Here, again, distance and shielding

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Dr. Resinger, formerly associate pathologist at Mercy Hospital, Des Moines, made this presentation at the Conference on Medical Civil Defense held at Oelwein on November 9, 1961. He is now Director of Laboratories, Good Samaritan Hospital, Lexington, Kentucky.

are of prime importance, just as they are with the flash burns. Alpha and beta particles travel only short distances in air and can be disregarded. Also, because of the violent updraft of air caused by the intense heat of the explosion, most of the fission products are swept into the stratosphere.

The amount of neutron and gamma radiation, however, is very important. Neutrons can be projected for considerable distances in air and have an ionizing potential several times greater than gamma rays since they can induce radioactivity either in the air or in the tissues through which they pass. Gamma rays, even though their ionizing potential is less than that of neutrons, have a great ionizing ability, and are especially damaging because of the large quantities of such radiation emitted at the time of explosion. The gamma rays with shorter wave-length have the greatest penetrating power in tissue, and may pass completely through the body, whereas those of longer wave length may be absorbed in air before reaching the body, or may be absorbed in superficial tissues. Gamma rays, in passing through air or tissue, follow devious paths as a result of collisions with subatomic particles. During such collisions, their wave-length is modified by the "Compton effect," so that the actual quantity of energy absorbed by the body can never be determined with any accuracy.

The period of time over which a given amount of radiation is absorbed is especially important. Six hundred roentgens of total body irradiation administered within a few seconds, as in an atomic blast, constitutes a fatal dose, whereas a similar dose administered fractionally to the total body over a period of days or weeks may or may not be fatal, depending upon the individual's tolerance to radiation, upon the size of the fractional doses and upon the total period of time over which the total dose is administered. The biologic effects of radiation are further modified, both quantitatively and qualitatively, by shielding. The less the area of the body that is exposed to radiation, the greater are the chances of survival. By the same token, protection of such important structures as the bone marrow offers a greater chance of survival, even if only a portion of the active marrow is afforded such protection.

SECONDARY EFFECTS

As previously mentioned, the secondary effects of the atomic explosion probably account for more deaths than the primary effects. Falling debris may kill instantly or may incapacitate or trap victims so that they are consumed in the widespread fires which follow such an explosion. Those individuals close to the point of detonation are most likely to suffer such a fate. That this is true is shown by the fact that only 4.5 per cent of those surviving the Hiroshima blast showed fractures.

Secondary infection of burns was extensive in the Japanese, and accounted for many deaths. Regardless of the usual cleanliness of a population, a catastrophe such as an atomic explosion is so disruptive to sanitation and medical facilities that many cases of burn infection may be expected.

Past opinion regarding the biologic changes due to radiation exposure was that the basic alteration was of a physical nature and, for this reason, that one could pinpoint the area of damage within a cell and determine the structure sensitive to radiation. It is now felt that the biologic alteration is of a chemical rather than a physical nature, and that the location of damage is not nearly so specific as formerly thought. It appears that the basic changes occur in the water of the cells—in the solvent for the dissolved substances. Radiation of water produces un-ionized H and OH radicals which are highly reactive and which rapidly interact among themselves or with dissolved substances, depending on which type of molecule is closer. Therefore, dissolved enzymes are more likely to be altered in concentrated solution than in diluted solution, because in the former there is a closer spatial relationship between the H and OH radicals and the enzyme molecules. Such an interaction can be expected to cause either reduction or oxidation of the enzyme molecules. If the H and OH radicals react with each other, they probably produce—among other things—hydrogen peroxide, which is an oxidizing agent. It is known that some of these interactions are toxic or lethal to the involved cell.

It has been found that protection of cells from such toxic or lethal changes is afforded by the presence of compounds which have a greater affinity for the un-ionized H and OH radicals. Sulfur-containing compounds have such an affinity. Cysteine and glutathione, if given in advance of irradiation, will offer such protection.

Protection is also afforded by a hypoxic condition of the irradiated animal, but at present those substances producing sufficient hypoxia are just as dangerous as is the radiation.

Cell changes produce either death or decreased function, inability to reproduce, or mutation. Those cells which reproduce most rapidly are usually most affected. In the order of decreasing sensitivity are spermatogonia, lymphocytes, erythroblasts, other hematopoietic bone-marrow cells, small intestinal mucosal cells, gastric mucosal cells, colonic mucosal cells, skin, central nervous tissue, muscle, bone and collagen. Recovery of testicular function has been seen to occur following radiation doses of less than 800 r., but as little as 10 r. may produce noticeable changes. Lymphocytic tissue may show a spectrum of changes ranging from cessation of mitotic activity to a marked atrophy, but usually will regenerate slowly if the patient survives. Cessation of red-cell production by the bone marrow is not readily apparent from examination of peripheral blood because of the 120-day life span of normal red cells. However, new red-cell production is diminished after irradiation, and a gradual decrease in hematocrit and hemoglobin

will be noted as worn-out red cells are destroyed. Deficiencies in white cells and platelets are apparent earlier because of the short life span of these structures, and even though their precursor cells are less sensitive to irradiation than are the precursors of red cells, neutropenia and thrombocytopenia, with their secondary changes, will be noted much earlier than anemia. It is unlikely that recovery will occur following total body doses of 800 r. or more. However, chances for recovery are far greater if some bone marrow has been spared from irradiation. The effects on small-intestinal mucosa, again, depend on the absorbed radiation dose, and they range from suppression of mitotic activity to a nearly complete denudation of the mucosa. In the latter instance, marked fluid and electrolyte imbalances supervene, as well as hemorrhage resulting from associated thrombocytopenia. If the patient survives, regeneration of the mucosa will begin in the crypts of Lieberkuhn, and complete regeneration will have occurred by about the twelfth post-irradiation day.

Heavy radiation doses cause peripheral-blood neutrophil counts to reach their lowest levels at about two weeks, whereas lesser doses do not produce their maximal neutrophil effects for five to six weeks. The peripheral white blood cell count may not return to normal until a year has elapsed. The platelet count may increase during the first 48 hours, but on the fourth or fifth day it begins to fall, and it reaches its lowest level at about four weeks. It is at that time that the danger from hemorrhage is most serious. Although the platelet count may not return to normal for as long as two years, sufficient recovery will have occurred within six to eight weeks to produce platelet levels above the range at which spontaneous hemorrhage occurs.

Probably the greatest danger in the post-irradiation period is infection. Neutropenia, poor antibody production due to damage to the reticuloendothelial system, impairment of the motility and phagocytizing abilities of phagocytes, and areas of hemorrhage which tend to become infected—all these contribute to the patient's marked vulnerability in regard to infection. Even normally saprophytic organisms may become pathogenic under such conditions.

The Management of Radiation Casualties

PAUL FROM, M.D.
Des Moines

THE FIRST ATOMIC BOMB was set off under experimental conditions from a tower near Alamagordo, New Mexico, on July 16, 1945. The second and third bombs were dropped from B-29 bombers on August 6 and August 9, 1945. The second bomb instantly and completely devastated four square miles of Hiroshima, and the third bomb totally destroyed 1.5 square miles of Nagasaki. In Hiroshima, 66,000 people were dead or missing, and 69,000 were injured, and in Nagasaki, 39,000 were killed and 25,000 injured. Since that time, 80 or more thermonuclear devices have been detonated, albeit none in true anger. The only information we have as to the effects of these devices has come from studies of the two Japanese cities, from experimentation following various trial detonations, including fallout contamination after a high-yield test explosion at Bikini Atoll on March 1, 1954, and from a rare accident in the handling of fissionable material.

The grave uncertainties in today's international situation have imposed a unique, unprecedentedly heavy responsibility on the American doctor. He is now being called upon by planning groups throughout the nation to assist in making realistic preparations for possible future hydrogen bombing of our cities. Sir Charles Snow, in an address on "The Moral Un-Neutrality of Science," has pointed out that the creation and stockpiling of nuclear weapons means that inevitably—sooner or later—some of them are going to go off. It seems, therefore, that a brief discussion of the hazards that might be encountered is sure to be of value.

Dr. From, a Des Moines internist, made this presentation at a conference on medical civil defense in Oelwein on November 9, 1961.

ESTIMATES OF PROBABLE RESULTS ARE UNRELIABLE

A realistic estimate of the number of casualties which might occur is impossible because the results of any bombing would be dependent upon many factors, such as type of burst, type of construction in the city, season of the year, density of the population, time of day the detonation occurs, and magnitude of the detonation.

Our previous information was based on 20-kiloton explosions (20,000 tons) in Japan. As we know, Russia recently exploded a device rated at a yield of 60 megatons (60 million tons)—nearly 3,000 times more powerful than those exploded in Japan. In Japan we produced an atomic (fission) explosion; now we must think in terms of hydrogen (fission and fusion) explosions. It is thought that

these tremendous-yield devices are not militarily feasible, but are used only for propaganda. Even so, a militarily feasible yield would be in the range of 20 to 25 megatons.

A thermonuclear device can cause casualties by three principal means: blast, thermal burns, and radioactivity. Each of these phenomena is distinct, and could be considered separately. There are three methods of detonation of a device—in the air, on the ground, or in water.

TYPES OF DAMAGE

Although it is thought that, for all practical purposes, one need not consider any survival in the area of the blast, and with extremely high-yield detonations this area could encompass hundreds of miles, a brief review of the types of casualties resulting from the bombing of Hiroshima and Nagasaki will be of interest.

1. *Blast Effects.* A. Direct. Casualties of this sort result from the sudden increase in pressure which enters the body through the mouth, nose, ears, and anus, and which inflicts trauma to the lungs, rectum, eardrums and other organs. In Japan, direct blast casualties were limited to fewer than 200 ruptured eardrums. Japanese medical observers could not find any patients with direct damage to the internal organs caused by the blast. Necropsies of the early cases showed no evidence of blast damage to the lungs. Many persons were said to have lost consciousness temporarily, with no history of direct trauma to the head.

B. Indirect. These effects are caused by flying debris, timber, and glass. As in conventional bombing, these results are much more important, but exactly how much of a total mortality in a bombing is caused by the traumatic factor can never be known, because soon after a blast the area will be swept by fire, and anyone unable to get away will undoubtedly burn to death.

2. *Burns.* A. Flame Burns. These are sustained as a result of secondary fire produced by short circuits, exploding gas mains, etc. Again, these burns are rare, for it takes time for fire to spread, and those unable to get away are burned to death.

B. Flash Burns. Such injuries are caused by the intense heat that radiates from the ball of fire. The thermal energy causing these burns probably lasts only three seconds. With high-yield hydrogen explosions, this type of burn can occur 17 to 30 miles from the point of detonation.

C. Effects of Radiation Energy on the Eye. Almost all patients in Japan had temporary amblyopia that lasted for an average of five minutes. This is caused by light of sufficient intensity to wash-out the visual purple in the retina, and blindness ensues until the body can re-supply the visual purple. Because of the focusing action of the lens, enough energy can be collected to produce a burn of the retina at such a distance from the explosion that the thermal radiation intensity is too small to produce a skin burn.

Cataracts can develop long after exposure to radiation, especially to neutrons.

D. Keloid Changes. These were frequent in Japan, and were thought to have been aggravated by infection and malnutrition. These keloids tended to disappear in the course of time.

E. Pigmentation and Depigmentation. These changes are due to ultraviolet rays. The area of increased pigmentation, surrounded by an area of less than normal pigmentation, began to subside in four months, but in some cases it persisted. Clothing protected the skin from these changes.

3. *Radiation Injury.* We are concerned mainly with the effects of gamma rays and neutrons, since these radiations are the ones which have the ability to penetrate into or through the body. The ionizing radiation received from a bomb-burst is almost instantaneous in character. A dose of 400 r. over the total body surface is sufficient to cause death in about half the exposed population. The LD 100 dose is about 600 r.

The radiations from the bomb consist of prompt and delayed radiations. A. Prompt radiations come from the chain-reaction itself and last only a few millionths of a second. They consist of hard, penetrating gamma rays and neutrons.

B. Delayed radiations consist of gamma rays and beta particles emitted by the fission products immediately after the explosion. Fission products are the lighter elements formed by the splitting of the plutonium or uranium 235 in the bomb. The atoms split in a number of different ways, so that a single explosion produces nearly 160 types of fission products (strontium, cesium, iodine, etc.), all of which are radioactive.

Besides forming fission-products, the nuclear chain reaction creates tremendous temperatures, vaporizing all the bomb components into an incandescent mass of gas. This mass, or ball of fire, expands rapidly until it is less dense than the surrounding air, and then it rises rapidly. Nearly all the fission products are in or around the ball of fire, and therefore, ascend with the cloud. The cloud ascends at the rate of about 10,000 feet a minute.

C. Residual radiation is emitted from fission products falling out of the cloud, or remaining on the surface following detonation. As the winds aloft carry the cloud, this residual radiation may fall out hundreds of miles from the site of detonation.

What are the effects of radiation? Epilation was frequently observed in people who had been close to the bombs in Japan, and who survived for more than two weeks. This falling-out of hair persisted from the thirteenth to the twentieth or twenty-seventh day. In no case was epilation permanent, and hair returned within three months.

Nausea and vomiting can occur within 30 minutes to 24 hours. A bloody diarrhea may develop within the first few days.

Radiation effects on the testes are discernible within four days, and can persist indefinitely. The

ovaries show less striking changes than the testes. Amenorrhea was common for three to four months after the bombing, but within one year the menses in all people studied were normal.

Purpura was almost always seen in people dying in the third to sixth weeks. Purpura and fever occurred almost simultaneously, reaching a peak in 16 to 22 days after exposures. At that time, there was an increased tendency to bleed from lacerations, fractures and burns. Healing of wounds was delayed, and if radiation sickness developed, wound healing stopped. Bleeding could occur from nose, gingivae, lungs, urinary tract, and rectum.

The clinical syndromes in radiation sickness were of two types. 1. Patients who died within the first two weeks showed no epilation and no purpura, but they experienced nausea and vomiting, then anorexia, malaise, diarrhea, thirst, fever, delirium, and death. Temperature elevation began between the third and seventh day, and remained constantly elevated up to the time of death.

2. Patients who died during the third to sixth weeks showed epilation and bone-marrow hypoplasia, in most instances. Necrotizing lesions were found in the gums, lungs and gastrointestinal tracts. Nausea and vomiting and malaise occurred early, and then there was clinical improvement until the fourteenth day, when epilation began, followed by malaise and fever. Sore throats developed, as did a bloody diarrhea and severe weakness due to anemia. Petechiae developed. The clinical picture was that of an aplastic anemia, and even though bone-marrow function might recover, many Japanese later died of secondary infections such as lung abscess or tuberculosis.

On the basis of the foregoing, how can we prepare ourselves to handle the terrific number of casualties resulting from a nuclear explosion?

We know that a prime military target is relatively near us—Offutt Air Force Base, the headquarters of the Strategic Air Command. The attack could take the form of an air blast, but we could expect Russia to detonate a device as a ground blast, since SAC is mainly underground, and the enemy would attempt to destroy the underground facilities. From a ground-blast, residual radiation is greater. One must always remember that the rocket might miss its mark, and place us in the blast area, or that certain areas not considered military targets might be destroyed simply for the sake of a demoralizing effect.

In such an event, of course, all permanent facilities in the blast area will have vanished, and all trained personnel and supplies will have been destroyed. Subsequently, because of radiation effects, the area will be inaccessible for 14 days or more, and thus anyone living through one blast and not protected from radiation will undoubtedly become a case of radiation sickness. It is not impossible that two weeks after a blast the undamaged areas will be commandeered for the treatment of casualties flown from the blast area.

However, since little will be left of a blast area, we need concern ourselves but little with these problems. What, then, about protection of areas in the fallout pattern?

We know from studies at Bikini that the fallout pattern from a bomb-burst follows roughly a cigar-shaped pattern about the blast area, the main direction depending upon the direction of the winds aloft. The area of fallout may extend for hundreds of miles.

PROTECTION AGAINST FALLOUT

Measures to be taken to protect against fallout are passive or active. Passive protection implies remaining in the contaminated area but taking all possible shelter, particularly from the gamma rays emitted by the fission products in the fallout. One very important factor to keep in mind is that these rays can travel only in a straight line, and can be absorbed or stopped by mass. Even the basement of a frame house can attenuate the radiation by a factor of 10, and greater reduction is possible in a large building or in a shelter covered by several feet of earth.

Active protection, implying evacuation to a safe area, is not feasible. A city could not be evacuated quickly enough, and because of a change of wind patterns a so-called safe area might be highly unsafe by the time a populace arrived there. However, there is one active protective measure which has great value, and that is decontamination after the fallout has settled. Steps must be taken in any contaminated area to decrease the amount of fallout in critical regions—e.g., roofs of houses, and streets. These procedures are hazardous, since they involve exposure of the operating personnel to fairly high levels of radiation.

Let us discuss some measures of passive protection in fallout shelters. A ventilation system with filters is desirable, but not mandatory. Air coming through cracks or through the walls would be sufficient to sustain life, and although fallout may enter the same way, breathing this in would not constitute a serious hazard. Home-type basement shelters are adequate, but should be specially constructed so that the ceiling could support the weight of the collapsed superstructure if such a collapse should eventually take place. Supplies of food and water for 14 days should be on hand, and they should be covered to protect them from the fallout. The water must be fresh.

A gasoline generator for power should be available.

A battery-operated radio for "Conelrad" frequencies is imperative.

Provision must have been made for warmth, and for disposal of waste materials.

Two and one half to three gallons of water per person per week will be needed in the shelter. If no one has thought to store water, safe water can be found in the home in the hot water tank and in the toilet.

Only a clean, or decontaminated, person is allowed in the shelter. If not clean, the clothing

should be left outside the shelter. This should not be a problem in most parts of this state since, for example, about one and one-half to two hours would elapse before fallout from a blast at Omaha would occur in Des Moines, and most people would have had time to get into their shelters.

Suitable instruments are needed for detecting the level of nuclear radiation, and one must understand the use of the instrument. The first surveys over the area will most likely be made by plane or helicopter outfitted with survey meters. Ground observation can be made later, but personnel making these surveys must be protected with individual monitors.

DECONTAMINATION

Once the radiation level has been found tolerable, decontamination procedures are started. These have as their goal the removal and disposal of contaminants. Covering the contaminant with soil is an excellent way to accomplish both these goals. Burning, burying, washing with water, or using a vacuum cleaner are other methods of decontamination. Decontamination personnel must wear clothing that has been adapted to prevent dust or water from reaching the skin.

What of the problems connected with water? Rivers, storage tanks, etc., are all subject to fallout. However, because of dilution by flow, and because of natural decay, water in a city system is safe to use. Well water is safe, for the soil will filter out contamination. Any water should be safe after several days. Distilling water will make it safe, but boiling alone is of no value in decontaminating it.

SUMMARY

What then, in summary, must we as doctors advise in care of a radiological attack? Everyone must get into a shelter immediately and stay there until it is safe to be out—a matter of 14 days or so—and this includes the doctor himself.

What can the hospital do to handle the situations resulting from a radiological problem? Doctors and other personnel very likely will not be available during the critical fallout period. Plans must be made for the stocking of sufficient food and water to carry the hospital through the first week or so, and plans must be made for decontamination of anyone coming into the hospital area. Plans are needed for determining who will benefit from the meager supply of food and drugs available. Emergency power equipment must be adequate and available.

If radiation-syndrome casualties are found, how can they be handled? One must ascertain, if possible, whether the patient has experienced a probably lethal dose of radiation. This is done by referring to the time of onset of symptoms and signs. Since we would be woefully short of supplies, if a person has had a probably lethal exposure, treatment of an active nature must not be wasted on him. If survival appears possible, therapy then revolves about adequate fluids, antibiotics, whole blood transfusions, and adequate vitamin intake. Supportive therapy for diarrhea and infections is indicated.

After all else, plans must be formulated for disposal of the dead, which probably will be a not insignificant problem.

The immediate problem when you are faced with a nuclear explosion or severe fallout is survival—your personal survival. Without this, you are not going to be available to do your job later. Above all, it is important that as many human beings as possible really grasp our present predicament. President Kennedy stated it well, in an address to the United Nations: "Today, every inhabitant of this planet must contemplate the day when it may no longer be habitable. Every man, woman, and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident, miscalculation, or madness. The weapons of war must be abolished before they abolish us."

Physician Population Boosted by 4,500

The physician population of the United States and its possessions increased by about 4,500 in 1961, the American Medical Association reported recently in a compilation of medical licensure statistics for the year.

The report showed that a total of 8,023 first licenses to practice medicine and surgery were issued in 1961. Subtraction of approximately 3,500 —the physicians who died during the year—leaves a physician population increase of about 4,500. The 1960 net gain was 4,330.

Of 8,714 applicants for licensure by written examination, 7,650 passed and 1,064 (12.2 per cent) failed. However, the rate of failure in approved medical schools was only 2.8 per cent. Twenty-six approved schools had no failures among their graduates. The greatest number of graduates from any one school to be examined was 214 from the University of Tennessee College of Medicine.

Statistics also were reported by the Educational Council for Foreign Medical Graduates, founded in 1957 to certify that foreign-trained physicians entering the United States had an education equivalent to that of graduates of approved medical schools in this country. The Council, which has held eight qualification examinations for foreign medical graduates, said the "net effect" of the ECFMG certification plan has been not to restrict but rather to increase both the number and the quality of foreign medical graduates coming to the United States for graduate training in hospitals.

In 1961, more than 3,600 foreign medical graduates were qualified directly from abroad by the ECFMG. This number is now greater than that of the graduates taking the examinations in the United States.

Fire Safety in the Hospital

ED. J. HERRON
State Fire Marshall

FIRE SAFETY IS PARAMOUNT in the day-to-day operation of hospitals, and it is of major importance to all fire departments. The fire service spends many hours in "pre-planning sessions" which are devoted to preparation for all possible situations that could occur in a hospital fire.

In addition to the pre-planning for hospital-fire fighting that the fire control officers do, the fire prevention personnel devote a great deal of time to making inspections. Copies of their reports are given to the hospital administrators, together with recommendations that will provide increased safety for life and property. These same reports and recommendations are channeled to the fire officers within the fire department so they will be apprised of the current situation at all times. Additional reports are reviewed by the chief officers as a result of conferences between fire-prevention personnel and city officials such as the water commissioner, streets commissioner, police commissioner and the public utilities executives. All of this preparation is necessary so there will be maximum efficiency in fire department operation, and a minimum of unexpected situations in case a hospital fire should occur.

Such efforts on the part of the fire department, in cooperation with the hospital administrators, have resulted in a high degree of fire safety in our hospitals. However, from time to time, tragedies occur that focus national attention on our hospitals. Within the past few months, two hospital fires have occurred in which several patients have lost their lives. The Hartford, Connecticut, fire started in a hospital incinerator chute, and the chain of events following its discovery let it develop into a serious fire that broke out into the corridor on the ninth floor, where the ceiling and wall-finish materials were combustible. The intense fire was confined to the ninth floor, but caused the deaths of several patients.

During the 1960 Christmas holidays, flammable decorations in the lower lobby of a Minneapolis hospital became ignited. Then, because the fire doors protecting the stairways were blocked open, and because there was a delay in summoning the fire department, several lives were lost.

COMMON FAULTS OF HOSPITALS

Reports following investigations of hospital fires throughout the country during the past few years have brought out several shortcomings that seem to be common to all hospitals. First, there is a widespread lack of emergency plans for the hospital personnel, and many of the hospitals that do have plans have not kept them up to date or practiced the procedures regularly. The consequent lack of familiarity with emergency procedures is almost certain to result in costly mistakes when serious emergencies occur.

Second, most modern hospitals are of fire-resistive construction and this fact lulls the administrator and the staff into a false sense of security. Most of our tragic hospital fires in recent years have resulted in very little damage to the structures themselves. The fire was confined to the interior contents and the finish materials, which were combustible, but patients have nevertheless been burned or have been overcome by toxic fumes.

Third, investigation following the fire in nearly all cases has revealed there was a delay in calling the fire department. The desire of the staff to prevent excitement or panic has resulted in a time lag that allowed the fire to burn for several minutes after discovery before the fire department was summoned. In the recent Hartford, Connecticut, fire, approximately 20 minutes elapsed between the discovery of the fire and the calling of the fire department.

Fourth, the professional staff of doctors and nurses performs magnificently under fire conditions, and without doubt, the doctors and nurses have saved many lives. Reports have indicated, however, that if these professional people had had immediate assistance from the fire departments, and if the hospital maintenance staff had been trained to relieve the doctors and nurses of fire-control and evacuation work, the loss of life could have been reduced.

STANDARDS FOR FIRE SAFETY

The evaluation of reports compiled as a result of investigations of hospital fires in recent years has enabled the fire authorities to recommend several standards for fire safety in our hospitals. First, every hospital should formulate an emergency plan, specifying the duties of each employee. The plan should be kept current and reviewed regu-

larly at employee meetings. Where practical, the parts of the plan that can be practiced should be incorporated into the regular drills.

Second, hospital construction, interior appointments and finishes, and exit facilities should be reviewed by the hospital administrator and fire officials. Special fire-protection devices such as door closers, fire extinguishers, fire-alarm systems and sprinkler systems should be made parts of any new construction or remodeling plans.

Third, there should be frequent and regular inspections to check for fire hazards—especially those that involve equipment, storage rooms, maintenance shops, laundries, kitchens, heating and air conditioning units, storage of flammable liquids and gas—along with regular checks on the condition of fire extinguishers, emergency lights, alarm systems and exits. These inspections should be reported in detail, and conditions needing correction should be taken care of immediately by the maintenance staff.

Fourth, semi-annual or annual meetings should be scheduled for the discussion of the over-all fire-safety program and the fire potential of the hospital, and for a review of reports made by fire inspectors. Members of the fire department, doctors, nurses, maintenance staff, and members of the hospital board should be in attendance at these safety meetings. All groups should be represented at the meetings so that no single group will be working at cross purposes with another group in their joint attempts to provide fire safety. Compliance with these basic standards will help a great deal in preventing loss of life from fires in our hospitals.

PREPARATIONS FOR NUCLEAR ATTACK

Hospitals, however, along with industry, business and other groups must, for the first time, give some thought to the creation of safeguards in case of a nuclear attack. In the event of a nuclear war, serious fire problems would develop in areas extending for many miles around "ground zero," the site of the detonation. There is no way of knowing the exact size of the nuclear device an enemy might use, but our military people say the 10 and 20 megaton devices are very practical from the military standpoint. A megaton is the equivalent of one million tons of TNT.

Three basic problems would confront the hospital and fire authorities in case a 10- or 20-ton nuclear device were dropped in the area where the hospital is located. These problems are the effect of, first, the blast wave, second, the thermal wave, third, the radioactive fallout. All of these would follow the detonation. The blast wave and the thermal wave would be close together, followed by a delay of approximately a half hour before the arrival of radioactive fallout. The blast wave and thermal wave would be circular in coverage, extending outward from ground zero for 20 to 30 miles in case of a surface burst. The radioactive fallout would be elliptical in shape, with the fallout following the direction of the prevailing winds. This fallout would occur in an area several miles across, but it could extend for many miles in length, and for many hours the radiation in the elliptical area would be above the safe level for unprotected human beings. Results of our nuclear tests have indicated that there would be complete destruction in an area eight to 10 miles in diameter, but that in the rest of the area which would feel the effects of the blast wave and thermal wave along with the fallout pattern, large numbers of people could survive, provided that emergency plans were available and were put into action.

A study of the fire-bombing attacks on the cities of Germany and the atomic-burning of the cities in Japan in World War II has indicated that the degree of success in containing mass fires is based on the preparation that has been undertaken to reduce the fire potential.

The fire safety program for hospitals should include planning for nuclear-device bombing, as well as for ordinary fire hazards. The ordinary plans, indeed, can well be the basis for protection against a nuclear-device attack. However, because of the magnitude of the fire problem that would be created, additional plans will be necessary to provide coordination between fire service and hospital service. Such items as water supplies that can be used for both fire control and decontamination should be planned for. New hospital construction, or renovation of present facilities, should follow the codes that provide the best fire-resistive construction and the greatest protection against the spread of fires within the structure. Locating hospitals on large tracts of land that provide isolation from combustible buildings is most practical because in the event of a nuclear attack any lightly-constructed and combustible buildings nearby would catch fire as a result of the blast, dislocating the equipment within these buildings and augmenting the thermal effect of the bomb itself, even though they were many miles away from "ground zero."

For several hours, fire departments would not be able to cope with the numerous individual fires because they would have to concentrate their efforts where the fire fighting would be the most effective and seemed most vitally needed to save lives and critical property. Hospitals, of course, would be high on the list, but since the available manpower and equipment to aid hospitals would be limited, the hospitals' emergency plan for defense against nuclear attacks will have to include the best fire safety program that is practical and that could be implemented by its own staff and employees.

At the present time, it is impossible to determine whether preparations for a nuclear attack will ever

be needed. Many people say a nuclear war can never occur, and that the effort and cost to prepare for one could be invested more wisely in other fields of endeavor. Experience during the past few years, however, has shown that war tensions blow hot and cold, but in one way or another world tensions never disappear. Our world leaders are agreed that the present pattern is here to stay for many years. The president of one of the major public utilities said, several years ago when his firm embarked on an all-out defense plan, "We don't know whether we are doing right or wrong, but we do know we cannot afford to take a chance on not being prepared." Hospital and fire authorities can be guided by this philosophy, since preparedness for the worst that might happen could easily be the difference between survival and extermination in any given area of the country, in case a nuclear-device attack were launched against us.

State University of Iowa

College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A RETIRED MALE entered University Hospitals for the second time at the age of 63 years. He had been hospitalized here previously, at 51 years of age, complaining of a severe precordial pain, with radiation down the left arm, exertional dyspnea, and occasional nocturnal crushing chest pain which was relieved when he sat down. He had been discharged on a low-salt diet, theophylline glycinate, 5 grains q.i.d., and phenobarbital. His history also revealed that he had had an appendectomy in 1918, and that both his parents had died of heart disease. He worked in a billiard parlor.

On the occasion of his second admission here, he weighed 149 lbs., but he had weighed 200 lbs. when he was hospitalized 12 years previously, and indeed had lost 26 lbs. during the six weeks immediately preceding his second admission.

About 5 weeks before he returned here, he had been hospitalized elsewhere with acute pulmonary edema. At the time of his discharge from that hospital, his medications were digoxin, 0.5 mg., q.i.d.; Diuril, 500 mg., b.i.d.; and nitroglycerin as needed.

Shortly, he developed continuous abdominal pain, colic, bloating and cramping. Eating caused the pain to worsen promptly or within 30 minutes. The pain was located around and below the umbilicus, but was often diffuse. The abdominal pain precipitated chest pains, but nitroglycerine sublingually failed to relieve the abdominal pain as it did relieve the chest pain. A barium motor meal before admission was judged to reveal inflammatory changes in the distal ileum, and a bland diet and antispasmodics were prescribed, but without relief. He had not vomited, his stools contained no gross blood or any indications of blood on chemical testing, and he had never been jaundiced.

The examination revealed a pale, chronically ill patient in distress because of abdominal pain. His blood pressure was 100/80 mm. Hg, his pulse was 108/min., and his respirations were 20/min. The fundi showed grade II arteriosclerotic changes. There was no hepatojugular reflex. There was no cardiac enlargement, no murmurs were heard, and the rhythm was normal. On abdominal examination, the appendectomy scar was noted. To palpation, the liver was 4 cm. below the costal margin, and with auscultation the bowel sounds were active. Of the major peripheral vessels, the temporal and femoral arteries were palpably pulsatile.

The blood count, urinalysis, routine blood electrolytes, creatinine and blood urea nitrogen were within normal range—and they remained so.

The patient was plagued and disabled by chest pain and abdominal pain. He shortly developed a severe episode of chest pain, and was placed on anticoagulants. After 24 hours, a precordial friction rub was heard over the fourth intercostal space. The serum glutamic oxaloacetic transaminase determinations began with 15 sigma units, and over five weeks ranged to 54 sigma units. Numerous electrocardiograms were taken.

Roentgenographic and fluoroscopic oral alimentary tract examinations were done, and they showed dilated loops of small bowel, but no intrinsic small- or large-bowel lesions. At times, the supine and erect views showed fluid levels and dilatation, but at other times they were normal.

After one month of observation, the patient was transferred to the surgical service. There, atten-

tion was directed to his abdominal condition, although his cardiac difficulty had not appreciably improved, and in addition, his right leg had become troublesome, being painful and cooler than his left. A barium enema was repeatedly delayed because of his chest pain, but the examination was finally made, and it outlined a normal colon with no reflux into the small bowel.

After seven days of observation, the patient began to vomit brown material, and the abdominal sounds were high-pitched, with protracted rumblings. The abdominal girth was somewhat enlarged. The small bowel displayed peristalsis actively through the abdominal mass. There were no signs of peritoneal irritation. The supine and upright films were interpreted as normal. An operation was decided upon.

During intubation, the patient became pulseless, and closed-chest cardiac massage was instituted immediately. Oxygen was supplied through the intubation tube. An electrocardiogram showed ventricular fibrillation, and on four occasions the external defibrillator converted the patient to a more normal mechanism, but it could not be sustained, even with an external pacemaker. The man was pronounced dead after an hour of such efforts.

SUMMARY OF CLINICAL DISCUSSION

Dr. Robert Hickey, Surgery: This afternoon we are concerned with a 63-year-old man who was admitted to University Hospitals for the second time after having been here at the age of 51. There are three things of particular interest in the protocol. He had a very severe chest pain, he had severe abdominal pain, and then he had an episode which we considered cardiac arrest in the operating room.

Dr. Theilen has consented to discuss this case as an unknown, but before we hear him, Mr. John Haydon, junior ward clerk, will present the views of the students.

Mr. John R. Haydon, junior ward clerk: Herman Hein, Al Healy, Charles Hickman and I were confronted with the history of a 63-year-old man who first came to this hospital 12 years ago with a symptom complex consistent with that of angina pectoris. His history revealed that both his parents had died of heart disease. In 1918, he had had an appendectomy. Over the past 12 years he had lost 51 lbs., and 26 lbs. of that weight had disappeared within the six weeks immediately prior to his arrival here. On admission, he weighed 149 lbs.

Five weeks before he came here, he had been hospitalized elsewhere with what appeared to be congestive heart failure. His medication at discharge from that hospital had been digoxin, 0.5 mg., q.i.d.; Diuril, 500 mg., b.i.d.; and nitroglycerin as needed.

We feel that his weight loss can be explained by the medication given him for his congestive heart failure. However, this does not rule out other causes for severe weight loss, such as neoplasms or tuberculosis. Shortly after his release from the local hospital, he had developed continual abdominal pain, colic, bloating and cramping. Eating caused the pain to worsen promptly or within 30 minutes. The pain was located around or below the umbilicus, but often was diffuse. The abdominal pain precipitated chest pains, but nitroglycerin sublingually failed to help the abdominal pain as it relieved the chest pain. A barium motor meal before admission had been thought to reveal inflammatory changes in the distal ileum, and a bland diet and antispasmodics had been prescribed, but without relief. The patient had not vomited, his stools contained no blood grossly or on chemical testing, and he had never been jaundiced.

These findings lead us to consider the following as possible causes of this man's abdominal difficulty: small-bowel obstruction, abdominal angina, hiatal hernia, chronic pancreatitis, carcinoma of the pancreas, biliary colic, renal colic, regional enteritis and tuberculosis of the intestines.

Physical examination on the patient's last admission to University Hospitals revealed a chronically ill man still suffering from abdominal pain. The low blood pressure and the findings of arteriosclerotic changes on fundoscopic examination support the possibility that he had abdominal angina. His having a normal-size heart is surprising in view of his apparent history of congestive heart failure. In this connection, we have considered the possibility of tuberculous pericarditis and tuberculosis of the small bowel. The small heart, narrow pulse pressure, high venous pressure and bowel symptoms would tend to support this diagnosis. A palpable liver, 4 cm. below the costal margin, would be an expected finding in a patient with congestive failure. The presence of active bowel sounds tends to rule out small-bowel obstruction on the basis of chronic vascular strangulation due to mesenteric artery thrombosis or vascular strangulation on a neurogenic basis. The laboratory tests were non-contributory.

The patient continued to have abdominal and chest pains, and apparently suffered a myocardial infarct shortly after admission, as evidenced by an episode of severe pain and the development of a precordial friction rub. The S.G.O.T., however, was not significantly elevated. In this connection, a pulmonary infarct has been considered, and it might well be consistent with the above enumerated signs and symptoms.

Later, periodic x-ray examinations of the alimentary tract revealed evidence of a small-bowel obstruction. Although no intrinsic small-bowel lesions were noted, it is not uncommon for them to be missed by competent radiologists.

One month after admission, the patient developed pain in the right leg, and the right leg was cooler than the left. We explain those findings

on the basis of a vascular occlusion following embolization of the mural thrombus of the heart.

Seven days later, the patient began to vomit brown material. The abdominal sounds were high-pitched, and there were protracted rumblings. The small bowel could be seen to display peristalsis actively, through the abdominal wall. These findings seem to indicate complete low small-bowel obstruction.

An operation was decided upon, and during intubation the patient became pulseless. An electrocardiogram showed ventricular fibrillation. It was impossible to convert the patient to a sustained sinus mechanism, and he was pronounced dead after an hour of attempts to do so.

This man seems to have shown the signs and symptoms compatible with two progressive diseases. The first is generalized arteriosclerosis. Features supporting such a diagnosis include a history of angina pectoris, retinal changes, peripheral embolism and myocardial infarction. Abdominal angina—another feature of this process—could well explain the abdominal pain. Progressive ischemia of the bowel wall occurs during periods of increased oxygen demand, namely active digestion. A low perfusion pressure was evidenced by a blood pressure of 100/80 mm. Hg, and this may have been a contributing factor. As Dr. W. B. Bean brought out in one of his monographs, loss of weight may be due to the patient's refusal to eat because of his constant association of pain with eating. The use of nitroglycerin and other antispasmodics is often ineffectual in relieving abdominal angina. Larger doses are frequently required than for angina pectoris.

The other process involved, we think, was intermittent small-bowel obstruction. The causes would include neoplasm, hernia and adhesions. The vascular etiology—i.e., thrombosis—generally is intermittent in character, rather than abrupt and devastating. However, the terminal and complete obstruction might well be explained on this basis.

We aren't told that a hernia was found, but the possibility of an intraabdominal hernia cannot be ruled out. Adhesions could be a distinct possibility, for the patient had had an appendectomy, but we should have expected a difficulty of that sort to have become apparent sooner.

Small-bowel neoplasm is our last consideration. X-ray examination revealed no intrinsic lesions, but we understand that this lesion cannot be ruled out on the basis of a negative x-ray. Yet, neoplasms of the small bowel are extremely uncommon.

Our final anatomical diagnosis would consist of: (1) generalized arteriosclerosis, with arteriosclerotic heart disease, congestive heart failure, myocardial infarction, insufficiency of the coronary arteries and peripheral embolization; and (2) low small-bowel obstruction resulting at first from mesenteric artery insufficiency with associated abdominal angina, and finally from mesenteric arterial embolic occlusion.

Dr. Hickey: Thank you, Mr. Haydon.

Now Dr. Theilen, we have a number of radiographs which you may have with or without an accompanying radiologist, or if you choose, we can provide electrocardiograms with or without interpretations.

Dr. E. O. Theilen, Internal Medicine: Your generosity in offering all of the data makes me a bit wary, for it suggests that the problem may not be so obvious as it seems to be on the basis of a preliminary survey of the available information.

This patient showed some of the ravages of degenerative vascular disease at a relatively early age. I think most of you would agree that he probably had coronary atherosclerosis and angina pectoris when he was first seen here at the age of 51. There isn't much point in my commenting now upon the therapy that was given him at that time.

Six weeks before his second and last admission here, he is said to have had acute pulmonary edema, presumably due to left ventricular failure. No comments were made about signs of right heart failure, although I presume that these might very well have been present since it is unlikely that selective failure of one ventricle could persist for an appreciable length of time.

The problem of the patient's weight loss should also be considered in relation to his possible congestive heart failure. A 26-pound weight loss in six weeks seems excessive unless it can be explained in part by fluid loss. Anorexia because of chronic passive congestion of the viscera could account for part of his weight loss, but it is also possible that treatment with diuretics might have brought about a large part of the weight change. A gastrointestinal lesion must be considered, as well, in a patient with weight loss and a history of abdominal pain.

The abdominal pain from which this man suffered presents several interesting possibilities from the standpoint of diagnosis. It apparently began before he came to this hospital and while he was still being treated for his heart disease. Could this have been from congestive heart failure? It seems somewhat unlikely. Abdominal pain from stretching of the liver capsule as the result of chronic passive congestion is well recognized, but I would not expect it to be cramping. The pain is described as periumbilical, and one thing which is perhaps quite significant is that it increased consistently after meals. The usual interval was said to be about 30 minutes. Several things come to mind when I examine this particular facet of his history. Pancreatitis must be considered. It certainly could account for rather severe abdominal pain that might be accentuated by eating. Pancreatitis might also account for some of the dilated loops of small bowel seen from time to time in some of the

gastrointestinal studies. I don't think that we can exclude involvement of the pancreas at this time.

I should like to know whether or not, during the course of this man's illness, any measurements were made of serum amylase or lipase, or whether any enzyme studies were done on fluid obtained from the peritoneal cavity.

Dr. Hickey: He had one amylase determination. It was 64 units on admission.

Dr. Theilen: Unfortunately, that doesn't help us a great deal. A high value would have been significant, but I don't think that one amylase determination of 64 units necessarily excludes a pancreatitis. Another thing that makes a diagnosis of pancreatitis somewhat untenable is the lack of any obvious etiologic factors. There is no history of biliary-tract disease, and as far as we know this patient was not an alcoholic. There is no history of trauma to the abdomen which might have precipitated a pancreatitis. Pancreatitis secondary to vascular insufficiency is also unlikely. Infarction of the pancreas, as far as I know, is a very rare cause of pancreatitis.

Now let's turn to some other possibilities such as obstructing lesions of the bowel. Could this man have had a volvulus of the small bowel or an obstruction on the basis of intraabdominal adhesions, or did he have an intrinsic lesion of the bowel? I am inclined to rule out the possibility of a small-bowel carcinoma because I think that someone would have been able to demonstrate a defect on at least one of the gastrointestinal x-ray examinations and motor meals. What about regional enteritis as a cause of small-bowel obstruction? This was suggested by the first motor meal that was done before admission to the University Hospitals. Some inflammatory changes were said to be indicated. Dr. Keller, are those particular films available for examination?

Dr. John T. Keller, Radiology: No, we have only our own films.

Dr. Theilen: I gather that no signs of regional enteritis were demonstrated on several examinations here. Barium will often reflux into the terminal ileum during a colon series in a patient with regional enteritis. This did not occur in this man. The so-called "string" sign was not found. If this man had had regional enteritis of sufficient severity to produce symptoms of intestinal obstruction, I should think one would have been able to visualize some abnormality in the small bowel, but apparently none was found.

Could this man have had a volvulus? It should have been possible to rule out volvulus of the sigmoid rather easily, since the physical and radiographic findings are rather characteristic. The clinical picture doesn't suggest volvulus of the sigmoid. We cannot be quite so certain, however, about intermittent volvulus of the small intestine. The close relationship of this man's pain to eating weighs against this possibility, however.

Finally, I should like us to consider an impairment of the arterial blood supply to the gastrointestinal tract as the cause of this man's difficulties. It perhaps is significant that he had pain which was precipitated by eating, or occasionally pain that was accentuated by eating. Perhaps his weight loss was due in part to his desire to avoid pain by *not* eating. On the other hand, some of his weight loss might have occurred as the result of malabsorption secondary to vascular insufficiency, even though he didn't have diarrhea, which we would ordinarily associate with malabsorption syndromes. Dilated loops of small bowel were seen on some of the x-rays. I wonder whether we may examine some of the films at this time, Dr. Keller. It is even possible that some of the inflammatory changes described by the physicians who referred the patient could have been secondary to an insufficiency of blood flow through the superior mesenteric artery. Vascular insufficiency in the intestinal tract can sometimes mimic regional enteritis, and may produce some changes in the mucous membrane.

Dr. Keller: This is a film taken 24 hours after the motor meal, and it shows several dilated loops of small bowel containing considerable amounts of barium. Another film taken after the administration of a barium enema shows multiple loops of small bowel dilated by gas, but shows no reflux of barium through the ileocecal valve.

Dr. Theilen: Would you regard these changes as non-specific?

Dr. Keller: Yes. We don't see any specific lesion, but would perhaps say that the changes are indicative of partial small-bowel obstruction.

Dr. Theilen: Thank you. We must not forget that this man's cardiovascular function was compromised in other respects. He had coronary atherosclerosis. He probably had a rather low cardiac output, or at least could not maintain a very satisfactory blood pressure. He had a blood pressure of only 100/80 mm. Hg. It is quite possible that he might have had an atheromatous plaque involving the superior mesenteric artery. A decrease in cardiac output following either a myocardial infarction or after congestive heart failure could very easily accentuate the manifestations of superior mesenteric artery insufficiency in such a circumstance. In fact, I should expect this to be the situation. I wonder whether anyone listened for bruits over the abdominal aorta.

Dr. Hickey: No bruits were detected.

Dr. Theilen: Thank you. Unfortunately, the absence of such findings does not rule out abdominal angina, although I certainly would be much more confident of such a diagnosis if a bruit had been heard.

This man next had a catastrophic episode, as far as his chest was concerned. He had severe chest pains, and developed a precordial friction rub which I presume was synchronous with the

heart beat rather than with respiration. Is that correct?

Dr. Hickey: Yes.

Dr. Theilen: I should expect that he had a myocardial infarction despite the transaminase values. Dr. Hickey, may I see one of his electrocardiograms that were taken at that time?

Dr. Hickey: These are a group of tracings beginning on the day of his admission.

Dr. Robert J. Joynt, Neurology: Are there progressive changes?

Dr. Theilen: The tracings do show progressive changes. The diagnosis of acute myocardial infarction seems well established. Following this episode, he developed further signs of vascular insufficiency, but this time in another area with symptoms referable to the right leg. He began to deteriorate, and I am sure that the active peristalsis and other signs that he developed were interpreted as indicating intestinal obstruction. I understand that there were no radiographic signs of obstruction at that time. Is that correct, Dr. Keller?

Dr. Keller: That is correct.

Dr. Theilen: Although the physical findings would suggest acute obstruction, this certainly does not have to be on a mechanical basis such as a volvulus or a stenosing lesion. It could easily be due to an acute occlusion of the superior mesenteric artery. Loss of function in an ischemic segment of bowel will act like a mechanical obstruction.

Taking everything into consideration, I am sure that this man's physicians had no choice but to explore him in the hope that he might have a remediable lesion. Unfortunately, he died as a result of ventricular fibrillation. He presented a definite risk, as far as his heart was concerned, but I don't believe that there was an alternative to operating on him. I don't think we can point a finger of suspicion at any one thing other than his heart disease as the precipitating factor in the cardiac arrest and ventricular fibrillation, and I really am not surprised that it occurred.

Why should there have been difficulty in resuscitating the patient? Good coronary perfusion must be present if one is to succeed in resuscitating a fibrillating heart. Unless the myocardium is well oxygenated, attempts at reestablishing a normal rhythm are seldom successful. Coronary atherosclerosis might have prevented adequate coronary perfusion, even though cardiac massage were done properly.

I predict that this man will be found to have had severe coronary atherosclerosis and a recent myocardial infarction. Peripheral atherosclerosis, with involvement of the superior mesenteric artery, will probably be found, and I anticipate that the pathologists will have found a segment of necrotic bowel on the basis of superior mesenteric artery occlusion.

Dr. Hickey: Thank you very much, Dr. Theilen. Are there any questions, alternate interpretations or other explanations for this man's hospital course?

Dr. James Clifton, Internal Medicine: I should like to ask about this man's bowel movements. Did he have diarrhea or constipation?

Dr. Hickey: At times he was constipated and had an increase in abdominal girth. Then at other times he was completely normal. He had no marked diarrhea, but also had no marked constipation.

Dr. George N. Bedell, Internal Medicine: Dr. Hickey, what was the clinical diagnosis at the time the patient was taken up for exploration?

Dr. Hickey: The clinical diagnosis was intestinal obstruction.

Dr. Bedell: You didn't want to commit yourself as to the basis of the obstruction?

Dr. Hickey: We had the background, and perhaps we gave special weight to the inflammatory changes of regional enteritis that were described in the interpretations of radiographs made elsewhere. Secondly, this man had had an abdominal operation, an appendectomy, and even though it had been some time since that procedure was done, we felt that this man had a low intestinal obstruction. We operated upon him with the diagnosis of intestinal obstruction on the basis of either regional enterititis or adhesions. On the other hand, he also had the secondary diagnosis of abdominal angina.

Dr. F. W. Stamler, Pathology: The significant autopsy findings were those concerning the heart and the small intestine. The heart was considerably enlarged, and the increased size mostly involved the left ventricle. With the enlargement,

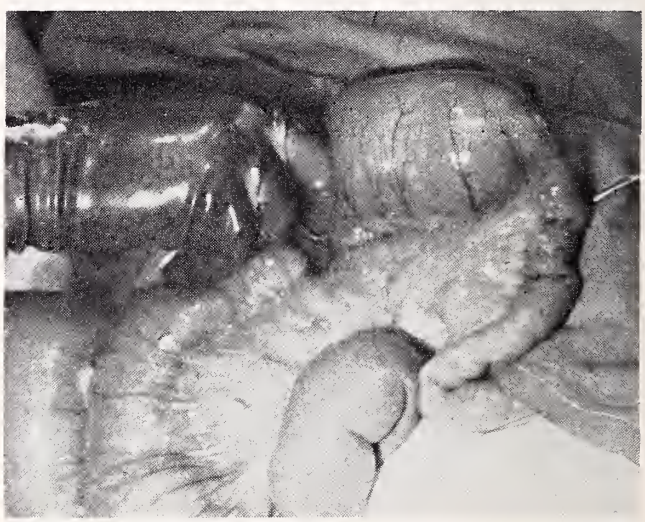


Figure 1. Stenosing lesion in a loop of small bowel found in the pelvis. The constricted portion is clearly shown, with greatly dilated ileum proximal, and normal ileum distal to the diseased portion. Note that there is little evidence of serosal inflammation or of the mesenteric scarring that is often seen with regional enteritis.

there was very extensive myocardial fibrosis involving almost the entire left ventricle. In this fibrotic myocardium, no gross fresh infarct was described, but microscopically there was quite extensive recent myocardial infarction. The patient probably had had a series of myocardial infarcts or continuing ischemic damage to the myocardium extending over a considerable length of time. There was a rather generalized and severe coronary atherosclerosis, but no fresh occlusion was detected in any of the coronary vessels. The fact that cardiac massage was unsuccessful in reinstituting the cardiac action was readily explained on the basis of this extensive damage. We have good evidence that this massage was carried on with considerable vigor, in that there were a number of ribs fractured—the third, fourth and fifth ribs on the left, and the third, fourth, fifth and sixth ribs on the right. A rather sizable hematoma was associated with this.

Figure 2. The opened ileum demonstrates the great degree of stenosis and thickening of the diseased portion, and the rather sharp transition between involved and normal portions.

The ileum displayed a 15 cm. area of stenosing fibrosis and chronic ulceration 120 cm. above the ileocecal valve. It caused almost complete obstruction to the bowel at that point. There were old fibrous omental adhesions to the anterior peritoneum in several areas, indicative of some past inflammatory episode, but there was no peritonitis at the time of autopsy. The stenosing lesion of the ileum was interpreted as a type of regional ileitis. It was somewhat more proximal in location than is usual in this disease, and also somewhat atypical as regards the nature of the inflammatory response. The chronic fibrosing lesion showed very little of the granulomatous inflammation that is present in many lesions of regional ileitis.

The first photograph I wish to show is of the stenotic lesion of the small bowel (Figure 1). This loop of bowel was found within the pelvis, but was freely delivered from that location. The constricted portion is clearly shown, with greatly dilated ileum proximal, and normal ileum distal to the diseased portion. You will note little evidence of serosal inflammation or the mesenteric scarring which is often seen with regional enteritis. The next photograph (Figure 2) shows the opened ileum, demonstrating the great degree of stenosis and thickening of the diseased portion, and the rather sharp transition between involved and normal portions.

The entire thickness of the diseased bowel wall is shown in the next photograph (Figure 3). The mucosa is entirely denuded of epithelium, and normal stroma has been replaced by chronic granulation tissue. The muscularis mucosa is represented by remnants of smooth muscle, beneath which a greatly thickened, fibrotic and chronically inflamed submucosa extends to relatively normal muscularis. The subserosa also shows mild fibrosis and chronic inflammation. There is little evidence of the chronic granulomatous inflammation sometimes seen in regional enteritis, although an occasional multinucleated giant cell is seen in the submucosa, and clusters of mononuclear cells in dilated lymphatics illustrate another feature of regional enteritis that is often stressed.

The next photograph illustrates the degree of scarring present in the left ventricle (Figure 4), whereas other areas showed myocardial necrosis and focal neutrophilic infiltration characteristic of an infarct of a few days' duration. The extensive myocardial disease resulting in irreversible cardiac standstill was the immediate cause of death.

These were the essential findings. The vascular system elsewhere showed no unusual degree of arteriosclerosis. The mesenteric vessels and aorta

were moderately well preserved. There was no evidence of ischemic changes of the bowel in relation to vascular occlusion.

Dr. Hickey: Was the superior mesenteric artery patent?

Dr. Stamler: The autopsy protocol states that the superior mesenteric artery was entirely free of disease.

Dr. Raymond F. Sheets, Internal Medicine: Were there any blood clots in the right leg?

Dr. Stamler: I believe not.

Dr. Hickey: Dr. Lawrence, would you discuss the resuscitative procedures? What do you think of the technic that was used? Are you surprised at the number of fractured ribs? How, ideally, would you go about resuscitating a patient under normal circumstances?

Dr. Montagu Lawrence, Surgery: If a patient has a cardiac arrest and there is justification for reviving him, survival depends upon the simulation of the action of the heart to perfuse the brain and the coronary arteries. Prior to January, 1960, the method of choice was open thoracotomy with cardiac massage. Since that time, however, closed-chest massage has been very popular and rewarding. There are advantages and disadvantages of both methods. Actually, I think I like the closed-chest technic better, but I have jotted down some advantages of each.

Here, then, are the advantages of open massage. 1. The operator is able to determine the status of the heart and the coronary vessels, and to decide what drugs should be given. For example, if the heart is dilated, he might like to give the patient calcium. If the heart is fibrillating, he might give epinephrine to increase the coarseness of the fibrillations so that defibrillation would be much easier. 2. One can observe directly the response of the heart to the drugs, and can direct defibrillation with greater certainty. 3. If drugs are administered, they may be injected directly into the left ventricle without injury to the coronary vessels, or if one wants to cross-clamp the aorta distal to the coronary artery, he can easily inject drugs at a point proximal to that clamp so as to perfuse the coronary arteries directly. Or if he wishes to cross-clamp the aorta distal to the left subclavian artery, so that all available blood will go directly to the brain and the coronaries, he can easily do that after opening the chest.

Now, the advantages of closed-chest massage. 1. It can be started immediately. 2. On the average, I think, better cardiac output is obtained with closed cardiac massage—i.e., massage of the heart between the posterior sternum and the vertebral bodies. 3. With closed cardiac massage, one avoids the complications of the "slashers." There is no rupture of the heart, and there is no laceration of the lung or coronary arteries such as we see quite frequently following open cardiac massage. 4. Closed cardiac massage may be indefinite as long as there is evidence of a peripheral pulse and as long as there is a satisfactory blood pressure.

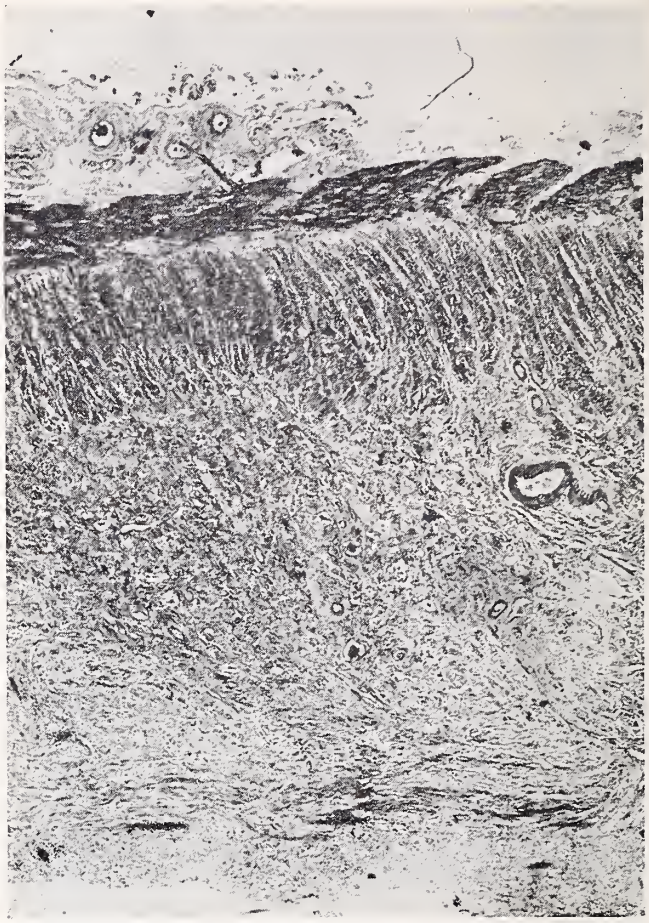


Figure 3. This shows the entire thickness of the diseased bowel wall. The mucosa is entirely denuded of epithelium, and normal stroma has been replaced by chronic granulation tissue.

Trained personnel must be available for direct massage. If there is a delay in opening the thorax, the chance of survival is lessened. Because of the excitement and the "wild man" desire to get into the chest to massage the heart, the operator quite frequently produces lacerations through the female breast, lacerations of the emphysematous lung that is usually present in the older patient, laceration of the heart, laceration of the coronary arteries, perforation of the right atrium and ventricle by his massaging fingers, or hematomas within the myocardium. If one chooses the closed-chest technic, he can start the massage immediately. However, extra gadgets will be needed. If one starts closed cardiac massage and there is no spontaneous return of pulse or blood pressure, the patient should be monitored with an electrocardiograph and, if there is extensive evidence of fibrillation of the heart, external defibrillation will be needed. A sufficient force to provide an adequate peripheral pulse and blood pressure may produce fractures of the sternum, sternoclavicular separa-

Figure 4. This illustrates the degree of scarring present in the left ventricle.

tion, fractures of the ribs, hemorrhagic lung and, very rarely, rupture of the liver, spleen or stomach. I think I could defend anyone who fractured the anterior thoracic cage while giving cardiac massage, on the grounds that such complications are easily corrected. Most of the complications from open cardiac massage, on the other hand, are not easily remediable.

In children, the chest is very pliable, and complications such as fractures of the chest wall seldom develop. However, in older people, the ones who frequently have cardiac arrest, the ribs are quite friable, and it has been said that some ribs may have to be cracked in order to produce adequate blood pressure by means of massage. I don't recommend the deliberate fracture of ribs for this purpose, however, and I suspect that the statement I have just quoted was made by an operator who had been too vigorous in his massaging efforts, and wanted an excuse for the damage he had done.

Finally, I should like to outline methods which I believe are satisfactory for cardiac resuscitation. Initially, closed-chest massage should be undertaken. An electrocardiogram should be made, especially if spontaneous action does not take place. Then external shockers should be used, and if action still does not recommence, one may continue the massage. If repeated shocking does not revive the patient, then one should undertake open pericardotomy, inspection of the heart, drug administration, direct massage, and defibrillation of the heart, if possible.

Dr. Hickey: If I may, Dr. Bedell, I'd like to return to your question about the clinical diagnosis that was made by the attending surgeons. This man was so ill when he was transferred from the medical to the surgical service, that we were unable to obtain an adequate x-ray of his alimentary tract. Repeatedly, he was scheduled for x-ray examination, but the radiologist said the risk was too great and the procedure was postponed for another day.

We suspected very strongly that this man had an intermittent mesenteric ischemia. Perhaps Dr. Bean should be the one to discuss this entity, for as you students are possibly aware, he published an article on it in the January, 1957, issue of ANNALS OF INTERNAL MEDICINE.* In the case that he reported in that paper, the patient was a 41-year-old man who had had severe attacks of abdominal pain that were quite similar to those that this more recent patient experienced. Initially the pains were colicky, and then they became more constant. Pains were associated with food, and early in his course he had pain when he ate fatty foods. Later, pain followed the ingestion of any type of food, and then he lost a considerable amount of weight.

This previous patient apparently got some relief from pain by sitting in a bent-forward position. The x-rays on him were equivocal, but there were some suggestive changes in the third portion of the duodenum, and he was operated upon with a tentative diagnosis of carcinoma of the pancreas. He died 66 hours postoperatively. At the time of the operation, no abnormality was detected in the mesenteric vessels, but they were not examined in detail, I must admit, for at postmortem he was found to have had a complete occlusion of the superior mesenteric artery—i.e., a partial occlusion had become complete. The superior mesenteric artery is very important. The arterial perfusion extends through the entire small bowel, part of the duodenum and to the left side of the colon. I am sure that the symptoms and the ability of the patient to withstand this type of partial occlusion would depend upon the degree of anastomosis that could take place.

As time progressed, the patient whom we have been discussing today seemed quite obviously to have an intestinal obstruction, and as I have related, we thought the cause must be a band from his appendectomy, performed long in the past. Of course, we were aware of the other possibilities,

* Sedlacek, R. A., and Bean, W. B.: Abdominal "angina": syndrome of intermittent ischema of mesenteric arteries. ANN. INT. MED., 46:148-152, (Jan.) 1957.

but we didn't place great weight upon them for the reasons that Dr. Theilen has listed. The patient was of the wrong age to have regional enteritis. He had an intestinal obstruction, and he needed therapy as a surgical emergency. We felt that his condition could proceed from the chronic stage to an acute situation, with strangulation which would bring about necrosis of the bowel, perforation, peritonitis and, probably, death.

With respect to the entities that would produce intestinal obstruction in a patient of this man's age, we should, of course, consider carcinoma as number one. Second, we should consider old adhesions, and finally, hernia. This man did not have a hernia. The various other entities would be volvulus and inflammatory changes, and the things that could confuse us would be the mesenteric difficulties due to arterial insufficiency, pancreatitis and metabolic diseases.

Dr. Edward E. Mason, Surgery: For many years, congenital atresia of the bowel was thought to be a failure of recannulization during development, and then it was discovered during animal experimentation that if one ligates vessels to the mesentery of the small bowel of the fetus *in utero* and then lets the bitch go to term, the pups have typical congenital strictures and yet the lesion in the blood supply cannot be identified. This man had a myocardial infarction and could have had endocardial thrombi, one of which could have lodged in a vessel in a segment of bowel. Resultant damage could have led to this strictured area. Is there anything in the pathologic findings that would be inconsistent with this idea?

Dr. Stamler: No lesion of the mesenteric vessel was detected at autopsy. I am not sure that the examination was thorough enough for us to be entirely certain that a vascular lesion wasn't overlooked. I should say, however, that an embolic phenomenon or any vascular disease severe enough to cause a high degree of ischemia to a 15 cm. segment of bowel probably would be severe enough to cause infarction at the time it occurred, with resulting gangrene and intestinal rupture and peritonitis, rather than the chronic stenosing lesion that we now see. I'm only stating an opinion, however, and I'm willing to entertain contrary views.

Dr. Mason: In a patient who was studied here on the metabolism ward for a few years, we finally made the diagnosis of abdominal angina and found that there were segments of bowel that quite obviously were ischemic. There were adhesions around that bowel, and a lot of fibrosis. I think it was almost the same picture that you see here. That patient did, however, have narrowing of the mesenteric artery.

Dr. Hickey: This man had no evidence of narrowing. As a matter of fact, there wasn't even a plaque.

Dr. Mason: What I postulate is an embolus—not arteriosclerotic narrowing but a remote occlusion which caused ischemic damage. Then, with time, the occluded vessel may have recannulized or otherwise may have become less obvious, leaving the patient with a stenosing, scarred segment of bowel.

Dr. W. B. Bean, Internal Medicine: Was this case similar to the one we discussed two weeks ago? In that patient, a woman, there was a tumor embolus that might have been causing upper-abdominal pains which seemed very mysterious to me. I thought that if this obstruction were severe enough to cause an infarct, it would produce gangrene, with infarction of the gut. There was an infarct from a tumor embolus of the mesenteric artery, was there not?

Dr. George Zimmerman, Pathology: We attributed the chronic difficulties that she had to the tumor embolus. We postulated that there had been a recent thrombosis superimposed upon the long-standing embolus and resulting infarction of the bowel.

STUDENTS' DIAGNOSES

1. Generalized arteriosclerosis, with arteriosclerotic heart disease, congestive heart failure, myocardial infarction, insufficiency of the coronary arteries and peripheral embolization
2. Low small-bowel obstruction resulting from mesenteric artery insufficiency with associated abdominal angina and, finally, mesenteric arterial embolic occlusion.

DR. THEILEN'S DIAGNOSES

1. Coronary atherosclerosis, with recent myocardial infarction
2. Peripheral atherosclerosis, with involvement of the superior mesenteric artery
3. Necrotic bowel secondary to vascular occlusion.

CLINICAL DIAGNOSIS

Intestinal obstruction.

ANATOMIC DIAGNOSES

1. Chronic regional ileitis
2. Arteriosclerotic heart disease, with (a) coronary arteriosclerosis, (b) cardiac hypertrophy and myocardial fibrosis, and (c) myocardial infarct, recent
3. Arteriosclerosis, generalized, moderately advanced
4. Omental adhesions, old
5. Hyperplasia, prostate
6. Fractures, 3rd, 4th and 5th ribs, left; and 3rd, 4th, 5th and 6th ribs, right
7. Aspiration of blood, tracheobronchial system.

Coming Meetings

CONTINENTAL U. S.

July 1-4 — **International College of Surgeons' New England Regional Meeting.** Mt. Washington Hotel, Bretton Woods, N. H.

July 3-8 — **Seminar for General Practitioners (UCLA).** University Residential Conference Center, Lake Arrowhead, California

July 5-6 — **Practical Applications in the Management and Rehabilitation of Arthritis.** University of Colorado Medical Center, Denver

July 9-12 — **Medical and Surgical Aspects of the Retina (University of Colorado School of Medicine) and Summer Convention of the Colorado Ophthalmological Society.** The Stanley Hotel, Estes Park, Colorado

July 9-13 — **Symposium for General Practitioners on Tuberculosis and Other Pulmonary Diseases (American Thoracic Society, Saranac Lake Medical Society, New York State Academy of General Practice, Canadian College of General Practice).** Saranac Lake, New York

July 13-14 — **Rocky Mountain Cancer Conference.** Brown Palace Hotel, Denver

July 16-27 — **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

July 19-21 — **Dermatology for General Practitioners.** University of Colorado Medical Center, Denver

July 23-27 — **Cardiopulmonary Problems in Children (American College of Chest Physicians).** Edgewater Beach Hotel, Chicago

July 23-Aug. 3 — **Surgical Technic.** Cook County Graduate School of Medicine, Chicago

July 30-Aug. 3 — **Audiology Workshop (University of Colorado Medical Center).** Estes Park, Colorado

Aug. 2-4 — **Anesthesiology.** University of California, Los Angeles

Aug. 6-10 — **International Society for Clinical and Experimental Hypnosis.** Benson Hotel, Portland, Oregon

Aug. 6-10 — **Fifth Annual Postgraduate Course in Pediatrics (University of Colorado Department of Pediatrics and the Office of Postgraduate Medical Education).** Stanley Hotel, Estes Park, Colorado

Aug. 12-15 — **Seminars in Internal Medicine (UCLA).** University Residential Conference Center, Lake Arrowhead, California

Aug. 15-19 — **Pediatrics (UCLA).** University Residential Conference Center, Lake Arrowhead, California

Aug. 16-18 — **Evaluation of Therapeutic Agents and Cosmetics.** University of California at Los Angeles

Aug. 19-25 — **International Congress for Microbiology.** Montreal, Canada

Aug. 24-25 — **Endocrine Aspects of Obstetrics and Gynecology.** University of California, Los Angeles

Aug. 25 — **American Institute of Ultrasonics in Medicine.** Biltmore Hotel, New York City

Aug. 26-27 — **American Academy of Physical Medicine and Rehabilitation.** Hotel Commodore, New York City

Aug. 26-Sept. 1 — **The Special Child in Century 21 (Second National Northwest Summer Conference).** Health Sciences Auditorium, University of Washington, Seattle

Aug. 26-Sept. 1 — **International Congress of Radiology.** Queen Elizabeth Hotel, Montreal, Canada

Aug. 27-30 — **American Association of Clinical Chemists.** Mira Mar Hotel, Santa Monica, California

Aug. 28-31 — **American Congress of Physical Medicine and Rehabilitation.** Hotel Commodore, New York City

Aug. 28-Sept. 5 — **Fifth World Congress on Electron Microscopy.** Philadelphia

Aug. 29-30 — **Medical Aspects of Athletics.** University of California San Francisco Medical Center, Berkley Campus

Aug. 30-Sept. 8 — **American Society of Clinical Pathologists.** Palmer House, Chicago

ABROAD

July 1-4 — **International Conference on Oral Surgery.** Royal College, London. Write: D. C. Trexler, Executive Secretary, American Society of Oral Surgeons, 840 North Lake Shore Drive, Chicago 11

July 1-7 — **From Disability to Work (The British Council for Rehabilitation of the Disabled), European International Study Course and Conference.** Cambridge University, London

July 8-12 — **International Congress of Psychosomatic Medicine and Childbirth.** Paris. Contact: Dr. L. Chertok, 22 rue Legendre, Paris 17, France

July 28-Aug. 3 — **Pan American and South American Pediatric Congress.** Quito, Ecuador. Write: Dr. Jorge Vallarino, P.O. Box 2269, Quito, Ecuador

July 30-Aug. 13 — **Fifth Annual Refresher Course (University of Southern California).** Royal Hawaiian Hotel, Honolulu, and on *S. S. Matsonia.* Address: Phil R. Manning, M.D., Associate Dean Postgraduate Division, U.S.C. School of Medicine, 2025 Zonal Avenue, Los Angeles 33

Aug. 8-15 — **International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York

Sept. 3-7 — **First International Conference on Water Pollution Research.** London. Write: Mr. W. Wesley Eckenfelder, Jr., Manhattan College Environmental Engineering Research Laboratory, 514 Sylvan Avenue, Englewood Cliffs, New Jersey

Sept. 5-8 — **International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany

Sept. — **International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest

Sept. — **Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London

Sept. 5-8 — **Sixth International Society of Audiology Congress.** Leiden, The Netherlands. Write: Dr. Trenque, 4 rue Montvert, Lyon, France

Sept. 9-15 — **Tenth International Congress of Pediatrics.** Lisbon, Portugal. Write: Prof. M. Cordeiro, Clinica Pediatrica Universitaria, Hospital de Santa Maria, Av. 28 de Maio, Lisbon, Portugal

Sept. 9-15 — **Ninth Congress of the International Society of Haematology.** Mexico, D. F. Write: Prof. G. Mathé, 11 bis rue Vanentin-Haüy, Paris, France, or Dr. J. L. Tullis, 1190 Beacon Street, Brookline 46, Mass.

Sept. 11-17 — **Twenty-second International Congress of Physiological Sciences.** Leiden, The Netherlands. Write: Dr. J. van Noordwijk, Plderweg 20, Amsterdam-0, Netherlands

Oct. — **American Society of Plastic and Reconstructive Surgery,** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadhent, M.D., Secretary, 508 East South Temple, Salt Lake City

Oct. 2-5 — **International Congress for Prophylactic Medicine and Social Hygiene.** Bad Godesberg, West Germany. Write: D. A. Rottmann, Liechensteinstrasse 32, Vienna, Austria

Oct. 7-13 — **World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.

Oct. 22-28 — **International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.

Nov. 11-16 — **World Medical Association,** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19

Dec. — **International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines

Feb. 20-24, 1963 — **Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Male Mental Acuity Linked to Cholesterol

Research findings indicate that the level of cholesterol in the blood has a "significant relationship to mental acuity in men beyond the age of 40 to 45." The findings were reported by Ralph M. Reitan, Ph.D., and Robert E. Shipley, M.D., Indianapolis, in an exhibit at the AMA Annual Meeting in Chicago.

Mental acuity was measured with a battery of 11 psychological tests covering a wide range of abilities, such as reasoning ability, problem-solving, reaction time, and time sense, they said.

Subjects whose cholesterol levels were lowered by 10 per cent or more over a 12 month period were compared with subjects whose cholesterol levels were not lowered, they said.

"Below the age of 45 years the groups performed equally well on the psychological tests," the researchers said. "In persons beyond 45 years of age, however, a clear difference was present. The group in whom cholesterol levels were not lowered performed significantly more poorly than did the other group upon re-testing at the end of the year."

They concluded: "The results suggest that lowering of serum cholesterol level takes on special significance after the age of 40-45 years, and leads to improved retention of alertness and mental acuity."

Several research findings in recent years suggest that mental acuity may be related to blood cholesterol levels, according to Reitan and Shipley.

Previous research by Reitan and Dr. Ward C. Halstead at the University of Chicago Clinics demonstrated a trend toward decreasing mental acuity beginning at an average age of 45 years and progressing with age, although not true in all persons.

Investigation of the blood vessels of the brain and other organs indicates that hardening of the arteries become more manifest in the later decades of life, and that this may be related to the cholesterol content of the blood, the two exhibitors said.

These prior findings suggested the possible value in repeated measurements of mental acuity in persons whose blood cholesterol levels had been decreased through treatment compared with untreated subjects, they said.

Letter to the Editor

Sir:

I want to congratulate those who planned the last scientific program of the Society's meeting.

It was enjoyable and interesting. I find that there are many doctors who agree with me in this regard.

It will help to increase the attendance at the meeting next year.

Sincerely yours,
ARTHUR E. PERLEY, M.D.

330 South Street
Waterloo, Iowa

IMS Past-Presidents

This cheery group of IMS past-presidents attended the 1962 Annual Meeting banquet. They are, left to right, top row: W. L. Downing, M.D., LeMars; James E. Reeder, M.D., Sioux City; G. F. Harkness, M.D., Davenport; R. N. Larimer, M.D., Sioux City; O. N. Glesne, M.D., Fort Dodge; Ben T. Whitaker, M.D., Boone; and J. W. Billingsley, M.D., Newton. Bottom row: Robert L. Parker, M.D., Des Moines; W. D. Abbott, M.D., Des Moines; Thomas F. Thornton, M.D., Waterloo; H. A. Spilman, M.D., Ottumwa; and Fred Sternagel, M.D., West Des Moines.

Our Elderly Aren't All Ill

With all the fanfare over the King-Anderson Bill there are several aspects of the care of the aged which have not been given sufficient consideration.

One erroneous concept is the equating of old age with long-term illness. It is the general impression that we have from 17 to 18 million people over 65 years of age who are medical problems. Sixty-five is a figure that has been arbitrarily selected as the beginning of old age, but it is well recognized that chronologic age is not an accurate yardstick for measuring the physiologic process of aging. Everyone knows elderly people who are vigorous and vital, and who set examples of industry and of service that younger people might well emulate. Until incapacitated by the infirmities incident to aging, grandmother's hands are never idle, and grandfather tends his garden, refinishes the furniture or keeps occupied as a disciple of Isaac Walton.

The most serious problem of the aged is a social one that mistakenly has been labelled medical. Dr. Robert Kemp,* an Edinburgh physician, has pointed out in an excellent article in LANCET that the common mistake in Britain was the belief that old people were in hospitals because they were ill. Though the National Health Service has been in operation since 1948, Kemp states that "in the hospital we find more and more people who have been admitted for social reasons." He points out that failure of morale, rather than illness, causes most of the bleakness of old age. The social responsibility for the aged is not a medical responsibility, but instead is an obligation of the family and of the community.

Another facet of the problem which should be given some emphasis is that making hospitalization too easy may well prove to be a disservice to the elderly. The conscientious physician does everything possible to keep his patient well and out of the hospital. The common infirmities incident to aging are best treated in the home, in the office or in the outpatient department. Admission of the aged man or woman to a chronic hospital may appear to be a simple solution for a difficult problem, but attrition from infection in such institutions is a serious deterrent. The elderly patient with a pulmonary or cardiovascular impairment is a likely candidate for infection by the hospital staphylococcus.

If the King-Anderson Bill or a similar proposal were to pass, overcrowding and overutilization of the hospital would be inevitable, and would add to a medical problem that already is a very serious one.

* Kemp, R.: Old age is not disease. LANCET, **1**:94-95, (Jan. 13) 1962.

Pneumonia Still Poses Difficult Problems

Despite all of the advances in the science of medicine, the accurate diagnosis and the management of pneumonia are still difficult. The clinician is frequently baffled by the contradictions of the clinical picture and the physical findings, by the failure of roentgenograms to confirm his clinical judgment, and by the inability of the laboratory to resolve the diagnosis. Even with a wide variety of antibiotics available for the treatment of the disease, our results are often disappointing or inconclusive. Few physicians with experience in caring for adults or children ill with pneumonia have not been chagrined over a lack of diagnostic acumen and perplexity over the management of the disease.

A recent discussion of the diagnosis and management of infectious pneumonia at the Mayo Clinic by Morrow, Olsen and Martin* should afford the individual physician a measure of comfort by showing him that others share his difficulties, and in addition, should provide him a better insight into the problem. Even at the Mayo Clinic, these authors say, "Infectious pneumonia is a continuing problem in diagnosis and management."

The Mayo group employ the time-honored classifications of primary and secondary infection, and pneumonia is still lobar or lobular. Pneumonia may be the initial manifestation of certain generalized infections, and thus there is a necessity for special diagnostic studies. In their experience, as it is with the individual practitioner, the most difficult problem is that of differentiating pneumonia due to bacteria from pneumonia due to viruses. The pneumococcus is still the most common cause of bacterial pneumonia, the disease is usually lobar in type, and ordinarily penicillin therapy is quickly effective. Staphylococcal pneumonia is usually lobular in type, and frequently occurs as a superinfection in patients hospitalized for other diseases, particularly viral pneumonia. Hemophilus influenzae is usually a secondary in-

* Morrow, G. W., Jr., Olsen, A. M., and Martin, W. J.: Infectious pneumonia: continuing problem in diagnosis and management. PROC. STAFF MEET. MAYO CLINIC, **37**:151-162, (Mar. 14) 1962.

vader. The Friedlander bacillus occasionally causes pneumonia in debilitated patients. Sputum and blood cultures taken before the start of antibiotic therapy should provide a bacterial diagnosis within 24 to 48 hours.

The Mayo group have abandoned the term "primary atypical pneumonia," which designated a patchy infiltrate of the lung that did not respond to antibiotic therapy. There still is disagreement concerning the etiology, but it has been attributed to infections by several different viruses. Many primary pneumonias do not respond to antibiotic therapy, and their clinical course suggests a viral infection. So common is this type of infection that it is now considered typical rather than "atypical." Proved viral pneumonia has usually been found to be the result of adenoviruses or to influenza viruses, types A and B. This has been demonstrated by paired serologic determinations which have shown an increase in antibody titer. The authors quote Evans, who reported that in only 28.1 per cent of cases can the etiologic diagnosis of pneumonia be established accurately. Of that 28.1 per cent, 8.2 per cent are of bacterial origin, and 19.9 per cent are caused by viruses. In the remaining 71.9 per cent of cases of pneumonia, the cause is unknown, but they are presumed to be of viral origin. The early diagnosis of viral infections is still largely experimental.

From their experience, the authors have found that certain roentgenographic characteristics help differentiate bacterial from viral pneumonia, but in the majority of cases the roentgenogram has merely confirmed the presence of pneumonia. Formerly, a leukopenia and relative leukocytosis was considered characteristic in atypical pneumonia. Today, in viral pneumonia, the leukocyte count is normal or may be elevated to 15,000/cu. mm., and often the neutrophils comprise 90 per cent of the leukocytes. In bacterial pneumonia the leukocyte count is usually elevated to 15,000/cu. mm. or more, and the percentage of neutrophils is usually increased. The erythrocyte sedimentation rate is elevated in both viral and bacterial pneumonia, though a significant rise to 100 mm. or more in one hour is more characteristic of a viral infection. Sputum culture ordinarily is positive in bacterial pneumonia and negative in viral infections, though in viral diseases the sputum may be contaminated by secretions from the nasopharynx, and the result of the culture can be misleading. A positive blood culture is found only in bacterial disease. Positive cold agglutinins and positive streptococcus MG titers are thought to be nonspecific responses to a viral infection.

Ordinarily there are certain clinical characteristics which aid the physician in differentiating a bacterial from a viral infection. Typically, bacterial pneumonia begins with chills and fever. A productive cough develops early, localized pleuritic pain is frequently present on the first or second day, and the pulse is rapid and correlates with the degree of fever. The patient with viral pneumonia complains of headache, aching of the muscles, malaise and fever. A cough develops only after several days, and pleuritic pain is relatively uncommon. In contrast to the patient with lobar pneumonia, an individual with viral disease has a pulse that is slow in relation to the degree of his fever.

According to the Clinic physicians, conjunctivitis and palatal petechiae are frequent in viral infections, but are rare in bacterial pneumonia. Pulmonary findings in viral disease often do not fit the roentgenographic changes. Early in the disease, rales may be heard, but the roentgenographic changes are questionable or minimal. Later, the roentgenographic evidence of pneumonia may exceed the physical findings, or with a paucity of physical findings the roentgenogram may reveal an extensive pneumonia. In bacterial pneumonia, there is usually a close correlation between the physical findings and the roentgenographic changes. Consolidation occurs in both forms of the disease, but it is usually more prominent and more extensive in bacterial pneumonia. Pleural effusion is common in bacterial disease, but is unusual and minimal in viral disease.

The philosophy of management, as expressed by the Mayo clinicians, is based on the premise that the majority of primary pneumonias do not respond to antibiotic therapy, and the clinical picture in these infections suggests a viral etiology. With this premise, a serious effort is made to differentiate between viral and bacterial disease. Unless the patient is critically ill, one should await the results of sputum culture and sensitivity determinations before starting antimicrobial therapy. An exception to this procedure is the critically-ill patient in whom a staphylococcal infection is suspected. In such an individual, appropriate treatment is started immediately after sputum and blood cultures have been taken. In patients not critically ill, antibiotics are given only to those who give clinical and bacteriologic evidence of an infection due to a susceptible organism.

The Mayo group prefer to treat the viral pneumonia patient in the home, if at all feasible. Hospitalization may result in a superinfection by virulent bacteria. The tetracycline drugs are used only in infections in which other drugs are less effective. This practice is based on the hazard of secondary staphylococcal invasion, which results from the suppression of the gram-negative flora of the body. In pneumococcal pneumonia, penicillin remains the drug of choice. In patients allergic to penicillin, erythromycin is administered.

The authors conclude that, in the diagnosis and treatment of pneumonia, there is no substitute for clinical acumen combined with a thorough knowledge of antimicrobial substances and their application.

Praise for Dr. Blanding

A recent press report quoted Sarah Gibson Blanding, Ph.D., president of Vassar College, in an emphatic admonition to her student body. She declared that college women are expected to conduct themselves as mature individuals and to uphold the highest moral standards. She courageously pointed out the hazards of social drinking and of sexual promiscuity. It is encouraging that the president of a leading college for women has realistically approached this serious problem among the youth of today.

A rising illegitimacy rate and an increase in venereal disease among teen-agers are evidence of increased promiscuity. Excessive drinking impairs restraint, and drinking among college students is far too common. Libidinous literature, off-color stage plays and salacious movies are the prize-winning arts of today, contributing to form an offensive and unwholesome climate for youth. Present-day society gives too much emphasis to sex and to physical glamor, and too little emphasis to character and wholesomeness. Disregard of moral codes by important people, and by so-called important people, gives the impression that flaunting of convention and disregard of traditional restraints constitute smart, sophisticated behavior.

The college woman has been freed from parental supervision and from the inhibitions imposed by her home community. She has entered a more sophisticated world of many pressures. She is exposed to a multitude of "isms" that suggest or have become associated with a departure from previously accepted ethical codes.

The libido is probably at its peak just at the time when our young people are of high school and college age. In primitive cultures in which education had an insignificant role, marriage was consummated at sexual maturity, but in our complex society education and a degree of emotional maturity are considered necessary before marriage. Judeo-Christian ethics have imposed restraints upon all of the age levels, and in our culture the family is predicated upon that philosophy. Departure from long-established ethical codes and disregard of restraints constitute immoral behavior, and despite the changing mores of our times, there is no uncertainty about the immorality of premarital physical intimacy and premarital sexual relations.

Far more necessary than admonition, of course, is real character-building in the home, supplemented by moral and religious training in the home, the school and the church. It is high time for educational leaders to make a forthright demand for high moral standards among students. Parents and society in general are indebted to Dr. Blanding for taking a positive rather than a *laissez faire* attitude toward a distressing problem that exists in many educational institutions.

New Trends in Physician-Clergyman Cooperation*

A Department of Medicine and Religion, with the goal of developing a closer relationship between physician and clergyman in the care of the patient, has been set up by the American Medical Association during the past year. It is a part of the Field Service Division of the AMA, and the Rev. Dr. Paul B. McCleave is its director.

This development is indicative of a healthy change in the attitudes of both professions, for in the past both of them have been jealous of their own fields. Discoveries in psychosomatic medicine have brought a new respect for the wholeness of the individual—including the body, the mind and the soul or psyche. These findings reinforce the statement made by Dr. Weir Mitchell: " 'Tis not the body, but the man is ill." In this age of ultra-specialization in all fields of endeavor, it is possible that the totality, the wholeness, of the person may have been forgotten in the effort to treat the particular problem. The mental outlook, the life philosophy, the desire to get well or not to get well, and therefore the religious faith or lack of faith of the individual has a bearing upon his recovery from any particular illness, type of surgery or accidental injury. Man is a whole person, a completely interrelated entity, and therefore it becomes necessary to treat him in his totality.

How often the physician and the clergyman (priest, rabbi or pastor) meet at the bedside of the patient (parishioner) with mutual concern for his welfare. Each can learn from the other. Each profession has plenty of work to do, and need have no fear that the other is threatening his position. Today there is the great possibility that the patient may recover more rapidly if these attendants learn to communicate and cooperate with one another, each realizing that he is not sufficient unto himself.

More and more clergyman of all faiths are being educated in the areas of depth psychology, counseling, and the interrelationship of medicine and religion. Recently, as physicians and clergyman have compared notes, they have been amazed at the great similarity between the *art* of medicine and the *art* of pastoral care. Both professions are interested in the health and wholeness of the individual—including the physical, the mental, the emotional and the spiritual aspects of man. Disorders in any of these areas cannot be treated separately if the person is to be helped properly.

When an individual becomes ill or needs surgery, and is hospitalized, he begins to ask many questions, if only there is someone present who will lend a listening ear. Maybe for the first time he rethinks the meaning of life, of the values in his job or profession, and often of his relationship

* The Reverend Mr. Russell C. Striffler, chaplain at Iowa Methodist Hospital, Des Moines, wrote this editorial at the invitation of the editors of the JOURNAL.

to God. In the hospital the person who has been very mature, very self-sufficient, very capable of making decisions in the business and social world, is rendered quite helpless. He becomes dependent, and often regresses to an earlier stage of emotional development, or at least reacts on a relatively immature level. If someone will take the time to listen to him, he will ask, "Why did this happen to me?" "Is there any relationship between wrongdoing (sin) and suffering?" "What will happen if I cannot get well?" "What about my family and my job?" No pious platitudes will satisfy the searching mind of the patient, but perhaps the physician and the clergyman, both being conscious of these thoughts and feelings, may be able to help the patient clarify his thinking and come to some of his own conclusions.

Doorways of cooperation are slowly opening, as individual members of both professions learn to know each other better. In this process, defenses are broken down, means of communication are improved, and physicians and clergymen learn that each of them needs the other, since both of these SERVICE professions are interested in one and the same person—THE PATIENT.

Glomerulonephritis and Impetigo

We have become accustomed to look upon impetigo as an innocuous superficial infection of the skin having no great clinical significance, and in our offices it has been a time-consuming nuisance. It is thus a complete surprise to learn, in a report from Emory University, of a rather large group of patients with acute glomerulonephritis in association with impetigo.*

For a long period of time, a causal relationship has been recognized between an antecedent beta streptococcal infection and glomerulonephritis. The renal lesion has usually occurred after an acute respiratory infection, and only rarely following a skin infection.

In the Atlanta study, 94 children with acute glomerulonephritis were seen in a three-year period from 1958 through 1960. The absence of a history of an antecedent acute streptococcal respiratory infection in a large percentage of the patients and the presence of an associated impetigo in many of the children stimulated a more careful study of the disease and its possible relationship to impetigo. After careful analysis it was determined that nine of the patients had had no prior infection, five of the children had had miscellaneous types of infection, 16 had had sore throat, and 64 (68 per cent) had had impetigo.

Throat cultures on 63 of the patients revealed a mixed bacterial flora with no predominating organisms. Beta hemolytic streptococci were recovered from three. In most of the patients, the impetigenous lesions were dry and crusted, and did not lend themselves to culture. Sixteen of the lesions were cultured, and beta hemolytic streptococci were recovered from eight patients in whom simultaneous throat cultures were negative. In three patients, positive cultures of the lesion were obtained but throat cultures were not taken. Antistreptolysin 0 titers were determined in 38 of the patients in the series, and they were found elevated in 36, and within the normal range in two patients. In 13 cases the titer exceeded 500 Todd units.

Of the 94 patients, 77 were Negro and 17 were white. The usual ratio of Negro to white at the Grady Hospital is 2:1. The cases were equally distributed between boys and girls. The series was unusual in that almost half of the patients were under five years of age. The seasonal distribution was significant in that cases associated with impetigo had their highest incidences in August and September. In contrast, the cases associated with an antecedent respiratory infection occurred most frequently from November through January.

The typical urinary findings characteristic of acute glomerulonephritis were demonstrated in all but two patients in the series. Thirty-three of 89 patients tested had either an elevated blood urea nitrogen or non-protein nitrogen level on admission. Facial edema was the most common presenting symptom. Fever was not a common symptom of those patients in whom impetigo was associated with the disease. Eighty per cent of the patients had hypertension. On radiologic examination, 76 per cent were found to have cardiac enlargement, and pleural fluid was visible in 56 per cent. Pulmonary congestion was demonstrable in 82 per cent of the cases.

The management of this group of patients consisted of bed rest, a low-sodium diet and the administration of penicillin for 10 days. All but 18 received antihypertensive therapy with reserpine, and 55 patients were also given magnesium sulphate as part of the initial treatment. Seventy of the 94 patients were digitalized, and digitalis was continued until the blood pressure had returned to normal and all signs of cardiac failure had disappeared. One child received peritoneal dialysis because of increasing acidosis and a non-protein nitrogen level of 232 mg. per cent. All patients recovered, and in follow-up studies from six to 24 months later, there was no evidence of chronic nephritis in any of the 94 patients.

The authors attributed the high incidence of acute glomerulonephritis associated with impetigo in this group of patients to several causes. The patients admitted to the hospital in which this study was made are from a low socioeconomic group, and impetigo in that class of patients is

*Blumberg, R. W., and Feldman, D. B.: Observations on acute glomerulonephritis associated with impetigo. J. PEDIAT., 60:677-685, (May) 1962.

exceptionally frequent. Most of the skin infections had not received treatment prior to admission to the hospital. Patients with acute streptococcal infections of the upper respiratory tract usually are ill and have sufficient fever to prompt medical consultation early. The early and effective treatment of most impetigo cases explains the relatively low incidence of nephritis from this cause.

Fifth Column

The following column appeared in the May 22 issue of the LONDON TIMES. Though the distortions that it contains actually originated with an American, one might have supposed that they came straight from Moscow.

Pill-Swallower Civilization of America

Attack by Health Official

Too Many Anxieties

From our own correspondent

Washington, May 21. The United States is described by a public health official as the wealthiest country in the world, and one of the unhealthiest. He blames the public, the medical profession, and the medical schools for the poor state of American health.

Dr. Herbert Ratner, a professor at Loyola University medical school, Chicago, and a commissioner of health in Illinois, makes these observations in an interview published by the Centre for the Study of Democratic Institutions in its series on the American character.

Dr. Ratner says the United States is the most over-medicated, most over-operated, most over-inoculated country in the world, and the most anxiety-ridden in regard to health. "We are flabby, overweight, and have a lot of dental caries, fluoridation notwithstanding. Our gastro-intestinal system operates like a sputtering gas engine.

Hearts and Heads

"We can't sleep; we can't get going when we are awake. We have neuroses; we have high blood pressure. Neither our hearts nor our heads last as long as they should. Coronary disease at the peak of life has hit epidemic proportions. Suicide is one of the leading causes of death—fourth between the ages of 15 and 44. We suffer from a plethora of the diseases of civilization."

The United States has become a nation of presumably healthy persons who cannot function well because they are full of anxieties, he said. "The most radical condemnation of our society and culture and American character is that one out of 10 babies—and there are about four million born in this country every year—will enter a mental hospital at some time in his life. A recent house to house count in one community indicated that one out of eight Americans suffers from a psychiatric disturbance severe enough to warrant treatment."

Dr. Ratner believes that Americans look upon health in materialistic terms. "They think of health as something that can be bought, rather than a state to be sought through an accommodation to the norms of nature. We have become increasingly a paying animal, as if health were solely a commodity of the market place."

Drugs as Panacea

Although the United States is the best place in the world in which to have a serious illness, it is one of the worst for non-serious illness. "We impose our life-saving drugs and techniques, intended for serious ailments, on minor, even trivial illnesses. . . ."

Barbiturates, stimulants and tranquilizers are the most misused drugs in the country. "We consume fantastic amounts of these drugs. For many they are used as a panacea to solve personal problems; they are practically replacing the functions of the virtues in striving for a sane and well ordered life. . . . We are becoming a pill-swallowing civilization, and God help us as a nation and as individuals when the new contraceptive pill really gets going."

Dr. Ratner also complains of wide-spread bottle feeding. "We have now recently brought into the hospital nursery—that efficiently conducted displaced-persons concentration camp—a mechanical heart beat to substitute for the reassuring heart beat that baby would normally hear when at its mother's bosom. It is called Securitone—shades of Wells, Huxley and Orwell!"

A Horse Outlook

Most medical schools are confused about their basic purpose, and they no longer know if their goal is to turn out physicians or research men. Doctors, he says, need a genuine philosophy of medicine permitting independent evaluation of current research, and this American doctors do not get. "They become, instead, sitting ducks for the canned speeches of the drug-house retail [*sic*] men. . . . The modern medical school is really not much different from the veterinary school. It could for the most part just as well have the horse for its subject."

Dr. Ratner has few fears about a national health service. "The medical profession has the obligation to see to it that every patient has the medical care he needs, and if this means what they call 'socialized medicine' the medical profession has to be ready to accept it."

The foregoing, we submit, is an example of "the big lie." Somehow, such assertions are particularly incongruous, dangerous and in poor taste when they come from a man trained in the sciences. We are reminded of the following lines from the BOOK OF ECCLESIASTES:

"Dead flies cause the ointment of the apothecary to send forth a stinking savour: so doth a little folly him that is in reputation for wisdom and honour. . . .

"Surely the serpent will bite without enchantment; and a babbler is not better.

"The words of a wise man's mouth are gracious; but the lips of a fool will swallow up himself."

President's Page

In accordance with an action taken by the IMS House of Delegates on May 16, 1962, your officers have agreed with the Iowa Society of Osteopathic Physicians and Surgeons on a plan that will permit professional relationships between all doctors of medicine and those osteopathic physicians and surgeons who meet certain qualifications.

Eligible osteopathic physicians and surgeons may apply through ISOPS to the MD/DO Liaison Committee, and each application will be referred to the medical society of the county where the applicant resides, for its approval. Final action on each approved application will be taken by the IMS Judicial Council.

Criteria for the county medical society's evaluation were proposed in the Supplemental Report of the Osteopathic and MD/DO Liaison Committees, presented during the 1962 annual meeting, and the House of Delegates approved them when it accepted the report of the Judicial Council acting as a reference committee. They can be found on page 474 of this issue of the JOURNAL.

IMS members will recall that in June, 1961, the AMA House of Delegates adopted a report that said, in part: "Recognition should be given to the transition presently occurring in osteopathy, which is evidence of an attempt by a significant number of those practicing osteopathic medicine to give their patients scientific medical care. This transition should be encouraged so that the evolutionary process can be expedited. [This] policy should now be applied individually at the state level according to the facts as they exist. . . ." Actions similar to Iowa's have been taken in a number of states, including Colorado, Ohio, Missouri, Kansas, New Jersey and Delaware.

President

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

PRACTICAL ANESTHESIOLOGY, by *Joseph F. Artusio, Jr.*, M.D., and *Valentino D. B. Mazzia*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $7.75).

PEDIATRICS, THIRTEENTH EDITION, by *L. Emmett Holt, Jr.*, M.D., *Rustin McIntosh*, M.D., and *Henry L. Barnett*, M.D. (New York, Appleton-Century-Crofts, Inc., 1962. $18.00).

ESSENTIALS OF PEDIATRIC PSYCHIATRY, by *Ruben Meyer*, M.D., *Morton Levitt*, Ph.D., *Mordecai L. Falick*, M.D., and *Ben O. Rubenstein*, Ph.D. (New York, Appleton-Century-Crofts, Inc., 1962. $6.00).

TUMOR VIRUSES OF MURINE ORIGIN (Ciba Foundation Symposium), ed. by *G. E. W. Wolstenholme*, M.B., and *Maeve O'Connor*. (Boston, Little, Brown and Company, 1962. $10.75).

CONGENITAL CARDIAC DISEASE: A REVIEW OF 357 CASES STUDIED PATHOLOGICALLY, by *Robert S. Fontana*, M.D., and *Jesse E. Edwards*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $10.00).

TEXTBOOK OF OPHTHALMOLOGY, SEVENTH EDITION, by *Francis Heed Adler*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $9.00).

PSYCHOLOGICAL DEVELOPMENT IN HEALTH AND DISEASE, by *George L. Engel*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $7.50).

INTERPRETATION OF SIGNS AND SYMPTOMS IN DIFFERENT AGE PERIODS: PEDIATRIC DIAGNOSIS, SECOND EDITION, by *Morris Green*, M.D., and *Julius B. Richmond*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $13.00).

MEDICAL STATE BOARD QUESTIONS AND ANSWERS, ed. by *Harrison F. Flippin*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $9.50).

TREATMENT OF INJURIES TO ATHLETES, by *Don H. O'Donoghue*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $18.50).

HANDBOOK OF PHYSIOLOGY, SECTION 2: VOLUME I, ed. by *W. F. Hamilton* and *Philip Dow*. (Baltimore, The Williams & Wilkins Company, 1962. $24.00).

FINANCING MEDICAL CARE, ed. by *Helmut Schoeck*. (Caldwell, Idaho, The Caxton Printers, Ltd., 1962. $5.50).

BOOK REVIEWS

CLINICAL PATHOLOGY: APPLICATION AND INTERPRETATION, THIRD EDITION, by *Benjamin B. Wells*, M.D., Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $9.00).

This text maintains the unique format characteristic of the previous editions. It is written from the clinician's point of view. A subject is approached by considering the clinical problem first. Then, a discussion of the useful laboratory tests follows. The procedures, of course, may be of varying types, yet all are germane to the specific clinical problem. Test methodology and theory are minimized. Sound consideration is given to the relative usefulness of each procedure. The text is, therefore, altogether practical and should find wide usage.

The author says, "This book is again offered to medical students and physicians as a guide in the application and interpretation of clinical laboratory studies." Many physicians fail to take advantage of the consultive service of the clinical pathologist to whom they submit specimens for examination. If they would do so, most of them would have little or no need for this text. However, in some localities a clinical pathologist is not immediately available for the discussion of cases and for suggestions as to test procedures. Medical students at all levels of training should find the book quite useful.

It is noteworthy that the third edition of CLINICAL PATHOLOGY includes numerous new features that bring it up to date quite adequately, yet reasonable brevity and simplicity have been maintained.—*David Baridon, Jr.*, M.D.

INTERNAL MEDICINE IN WORLD WAR II: VOLUME I—ACTIVITIES OF MEDICAL CONSULTANTS, ed. by *Col. John B. Coates, Jr.*, MC, and *W. Paul Havens, Jr.*, M.D. (Washington, D. C., Office of the Surgeon General, Department of the Army, 1961. $7.50).

This 827-page volume deals with the roles of various medical consultants in all theatres during World War II. It is very well documented and well illustrated, and makes for interesting reading, not only for men who were in the service but for anyone else who is interested in the problems encountered by the Army Medical Corps in all parts of the world.

The lessons learned, both good and bad, as brought out in this volume will undoubtedly serve as a guide for the more effective utilization of medical consultants in any future disasters.—*Pat M. Cmeyla*, M.D.

RENAL BIOPSY: CLINICAL AND PATHOLOGICAL SIGNIFICANCE (A Ciba Foundation Symposium), ed. by *G. E. W. Wolstenholme*, M.B., and *Margaret P. Cameron*, M.A. (Boston, Little, Brown and Company, 1962. $10.50).

Under the sponsorship of the Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research, a symposium on "The Clinico-Pathological Significance of Renal Biopsy" was conducted in London during March, 1961, under the chairmanship of Dr. Arnold R. Rich, of Johns Hopkins University. The papers presented, the remarks of the chairman and the discussions by 29 pathologist and clinician participants have been presented in excellent, beautifully-illustrated form in this 395-page book.

As Dr. Rich brought out in his closing remarks, "Only biopsy can supply fresh renal tissue at particular desired times during human renal diseases and, as is well known, fresh tissue is required for trustworthy results in electron microscopy and in the study of cellu-

lar chemistry, particularly enzyme chemistry. No other organ in the body has so complex a functional unit as the kidney. The advances in knowledge of the finer structure of the nephron, which are being gradually contributed by electron microscopy, have already raised fascinating and basically important problems concerning the correlation between the new structural discoveries and normal and disturbed renal function."

With so much attention given to the study of finer structural details of the kidney in health and disease, the volume should be of timely value to those interested in renal research and also to those practicing in institutions where percutaneous renal biopsy is undertaken.—*R. F. Birge,* M.D.

ATLAS OF CLINICAL ENDOCRINOLOGY, SECOND EDITION, by *H. Lisser,* M.D., and *Roberto F. Escamilla,* M.D. (St. Louis, The C. V. Mosby Company, 1962. $23.00).

This is the second edition of an atlas which was originally published in 1957. As the authors point out, there are many excellent textbooks on endocrinopathies, in which the overwhelming emphasis is on the written word. This atlas was produced to stress the pictorial aspects, and magnificent results have been achieved in depicting various stages and manifestations of endocrine disease.

The text is in outline form, and each entity is considered under definition; symptoms, important and less significant; physical signs, important and less significant; laboratory tests, confirmatory procedures, and less essential; differential diagnosis; treatment; and prognosis. Since it is in outline form, the text is necessarily somewhat dogmatic, and only brief mention is made of theories other than those of the authors. Many excellent photographs, with complete explanatory legends, are presented with each entity. The authors stress the history and the physical examination—especially observation—throughout the book.

A complete appendix is included, giving the normal values for laboratory tests helpful in endocrine diagnosis, information on endocrine preparations useful in everyday practice, including dosages and indications for each of the endocrine glands, and tables setting forth growth standards and development manifestations for each of the various ages of life.

This truly is an atlas of endocrinology designed especially for clinicians. It is a valuable book, and it would be a worthwhile addition to any physician's library.—*George G. Spellman,* M.D.

THE DYNASTY, by *Charles H. Knickerbocker,* M.D. (New York, Doubleday & Co., 1961. $4.50).

John Crest, a poor boy with determination and ambition, and a steady student, enters medical school. In due course he graduates, then internes. He marries Emerald Parkindale. The Parkindales are a medical family—a dynasty.

Emerald is moody, though casual in matters of sex. Her father, a general practitioner in a small town, is unethical and domineering. A brother is surgically talented, but superficial and cynical. The grandfather, dean of the medical school, is brilliant but frustrated. An uncle, a big-city plastic surgeon, is gifted but given to sleeping with certain of his re-done female patients.

Young Dr. Crest, an idealist, enters practice with his father-in-law. In addition to the conscienceless Dr. Parkindale, there are five other doctors in town: one a narcotic addict and alcoholic (formerly a promising brain surgeon), one a dandified old man, and three others who are almost faceless nonentities.

These unusual and somewhat jaded characters go about their day-by-day activities, and therein lies the story. Needless to say, except for our hero, the general behavior is shocking and scandalous, although somehow almost everyone seems more calloused than evil. If fictional doctors must be bad, as so many novelists apparently insist, one could almost prefer a Dr. Jekyll and a Dr. Caligari.

Yet for all the distortion in the characters, the narrative is interesting, and the medical situations are authentic. Best of all, the author seriously and candidly attempts to come to grips with the perplexities of the practice of medicine—the declining prestige of the doctor, the conflicts between the art and the science of medicine, the rationale for the "conspiracy of silence" among doctors, the uneasy accommodation between service and fee for service, and the deep sense of failure occasioned by the death of a patient.

The author is a doctor in private practice. He has been able to write a book, get it published, tell a story, and discourse with sincerity on philosophical problems of the medical profession. All in all, that's quite an accomplishment.—*Daniel F. Crowley, Jr.,* M.D.

National Bilirubin Survey

In order to stimulate interest in the accuracy of bilirubin determinations, the College of American Pathologists Standards Committee announces a National Bilirubin Survey, available to all physicians and hospitals.

Accurate bilirubin measurements are of great importance in decisions as to the need for exchange transfusions in cases of newborn erythroblastosis fetalis. They are of great importance in the differential diagnosis of the various icteric syndromes in patients of all ages. They are important in evaluating prospective blood donors. In all of these cases, a poorly calibrated technic will lead to serious mistakes in the care of the patient.

Bilirubin measurements must be consistent from year to year so that treatment is based upon the same criteria in successive patients. Therefore, reliable bilirubin standards should be utilized with stable photoelectric photometers.

Participants in the Survey will receive a set of survey samples. Following the Survey, a critique of bilirubin standards and methods of analysis will be provided them. Questions rising during the Survey may be directed to the Committee.

Those who wish to participate are invited to send the $8 enrollment fee to the Standards Committee, College of American Pathologists, Prudential Plaza, Chicago 1, Illinois. Applications must be received no later than August 1, 1962.

Hearing Conservation

The Incidence of Hearing Loss

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, *consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.*

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of representatives from the section on otolaryngology of the Iowa Medical Society, from the Academy of Otolaryngology and Ophthalmology, from the American Academy of General Practice, from the State Department of Health, from the Department of Otolaryngology and the Department of Speech Pathology and Audiology at S.U.I., from the Division of Special Education of the State Department of Public Instruction, from the Iowa School for the Deaf, and from the Des Moines Chapter of the American Hearing Society.*

*C. M. Kos, M.D. (chairman), otologist in private practice, Iowa City.
Joseph Wolvek (executive secretary), consultant, Hearing Conservation Services, State Department of Public Instruction, Des Moines.
L. E. Berg, superintendent, Iowa School for the Deaf, Council Bluffs.
Dale S. Bingham, consultant, Speech Therapy Services, State Department of Public Instruction, Des Moines.
Paul Chesnut, M.D., private practitioner and member of AAGP, Winterset.
James F. Curtis, Ph.D., head, Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Madelene M. Donnelly, M.D., director, Division of Maternal and Child Health, State Department of Health, Des Moines.
Joseph Giangreco, assistant superintendent, Iowa School for the Deaf, Council Bluffs.
Malcolm Hast, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
William Ickes, Ph.D., director, Des Moines Hearing and Speech Center, Des Moines.
Byron Merkel, M.D., otolaryngologist in private practice and member of Academy of Otolaryngology and Ophthalmology, Des Moines.
William Prather, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City.
Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

How many adults and children are hard of hearing? What would you say: 20 per cent? 5 per cent? or 2 per cent? Actually, all the answers are approximately correct depending on what definition of hearing loss you are willing to accept.

When we measure hearing by means of a pure-tone audiometer, we are concerned with two variables—the relationship between pitch, or the frequency of the sound, and loudness, or the intensity of the sound. We measure hearing acuity for very low pitches, down to 125 cycles per second, and for very high pitches up to about 8,000 cycles per second. We have assumed a mean level of loudness for each pitch, which we call "normal" or zero hearing loss. The extent to which an individual subject deviates from this so-called zero level determines his hearing acuity for any particular frequency being tested. Since the level of zero loss is only an average, we can very well expect deviations on either side of zero loss still to be considered normal hearing. Somewhat arbitrarily, we can ascribe a normal hearing range to a plus or minus ten decibels from zero.

Now, if we assume that a subject is hard of hearing if he has even one frequency in either ear which exceeds a ten-decibel level, then we can see how the incidence of hearing loss would be considerably greater than it would be if we failed to consider a subject hard of hearing until the loss in his better ear averaged at least 30 decibels for the frequencies in the middle range. Yet, many times figures reporting incidence of hearing loss do not tell us by what measure hearing loss has been established. Early public-school surveys reported the incidence of hearing loss to be anywhere from 4 per cent to 17 per cent of the school-age population, and a loss of 10 decibels or more in one ear was considered sufficient to claim the presence of a hearing defect. A New York World's Fair hearing survey showed 15 to 20 per cent of the population tested had losses of ten decibels. Although a loss of ten decibels may be considered a hearing defect, a child or adult possessing no more than ten decibels of hearing loss cannot possibly be considered hard of hearing.

Today, most public-school hearing surveys employ the screening standards suggested by the American Academy of Ophthalmology and Otolaryngology. In essence, a child is considered to

have failed the screening if he has been unable to hear two or more frequencies at a level of 20 decibels. By this standard, it was found that 4.26 per cent of the children in 73 Iowa counties had hearing loss during the school year 1959-1960. Again, these children are not necessarily hard-of-hearing, but have medically-significant hearing loss only. It is estimated that 90 per cent of the children with medically-significant hearing loss will recover their normal hearing through proper treatment. The same New York World's Fair hearing survey referred to above revealed that in a general population 5 to 7 per cent of the persons tested had losses of 20 decibels, or in other words, had medically-significant loss. The incidence is similar to that reported in the Iowa public schools.

What remains then? Just how many truly hard-of-hearing cases are there? The New York World's Fair survey indicated that 2.5 per cent of a general population had hearing loss of 30 decibels (the approximate borderline for a hearing aid), whereas, in a National Health Survey conducted in 1940, it was found that for the total population, one out of 78 males (1.2 per cent) and one out of 85 females (1.1 per cent) had losses to the extent of 47 decibels in the speech frequencies (1,000 to 2,000 cycles per second). The same National Health Survey indicated that one out of 2,326 persons (.04 of 1 per cent) were totally deaf for speech (losses approximating 70 decibels or greater).

It would be well to keep in mind that there are other considerations to take into account in evaluating the incidence of hearing loss. Mainly, these have to do with age and sex. The mean level of hearing acuity appears to lower with advancing age. This is particularly true for the higher frequencies. Also, the mean level of hearing acuity is different for men and women. Women tend to have slightly more acute hearing.

To summarize, the incidence of hearing loss which just exceeds the normal ten-decibel range may be as great as 20 per cent. Hearing loss exceeding 20 decibels in at least two frequencies approximates 5 per cent. The incidence of communicatively handicapping loss (30 decibels or over) is about 1.2 per cent to 2.5 per cent, which may be arbitrarily rounded off to about 2 per cent. The incidence of persons deaf for speech is .04 of 1 per cent in a general population.

Committee to Run Medical School

The State Board of Regents has announced that the Executive Committee of the State University of Iowa College of Medicine will, in addition to its regular duties, act in lieu of a Dean of the Medical School while a replacement for Dr. Norman B. Nelson is being sought. Members of the Executive Committee are Rubin H. Flocks, M.D., Professor and Head of Urology, chairman; Carroll B. Lawson, M.D., Professor and Head of Orthopedic Surgery; Jack M. Layton, M.D., Professor of Pathology; Albert M. McKee, M.D., Professor of Bacteriology; and Willis M. Fowler, M.D., Professor of Internal Medicine.

In Memoriam

W. A. Sternberg, M.D.

Dr. W. A. Sternberg died at the home of his daughter, Mrs. Glenn Ellis, in Far Hills, New Jersey, on Saturday, April 28, 1962, at the age of 87.

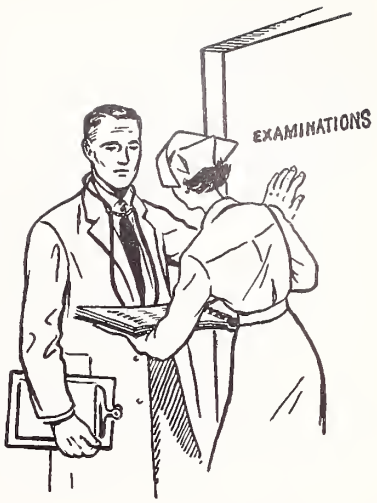
He was born on a farm near Mitchellville, Iowa, on December 27, 1874. He graduated from Drake University in 1896, and received his M.D. degree from the University of Illinois in 1901.

Dr. Sternberg served the community of Mt. Pleasant for over 50 years, retiring in 1953 and moving to California. During his years of practice he was active in many community affairs. He was county chairman for the Democratic Party for many years, and twice was delegate to the Democratic National Convention. Dr. Sternberg was the first president of the Mt. Pleasant Rotary Club, organized in 1925. He held all the offices in the Henry County Medical Society, at various times, and was a member of the Board of Trustees of the Iowa Medical Society from 1947 until 1950, and chairman of the Board in 1950. He received a Merit Award for long and faithful service to medicine from the Iowa Medical Society in 1952.

Mrs. Sternberg is still living in California, and besides his daughter in New Jersey, he is survived by a son, Dr. Thomas Sternberg, of Los Angeles.

—*J. Stewart Jackson, M.D.*

THE DOCTOR'S BUSINESS



Life Insurance Settlement Options

HOWARD D. BAKER
Waterloo

In addition to the company from which you buy life insurance and the type of contract that you purchase, the method of settlement of the proceeds is of major importance. Following is a brief summary of the various options available on most policies today. Proper selection of option—perhaps the right combination of options—is almost as important as having an adequate amount of insurance.

1. The Lump-Sum Option. This is self-explanatory. It should be used primarily to provide cash immediately, when this cash will not be available from other sources.

2. The Interest Option. Under this arrangement, the company retains the proceeds and pays a stipulated rate of interest on them. Usually the right to withdraw the proceeds, in part or in full, is vested in the beneficiary. This option is desirable when income, or cash, will not be needed immediately but will be required later on. This option can be changed to another at a stipulated time, or at the beneficiary's discretion.

3. Income for a Fixed Period. This arrangement pays income for a predetermined, fixed period. The amount of income is governed by the period elected and the proceeds available. The commonest use for this option is to provide a monthly income for the widow during the dependency period of the children.

4. Income of a Fixed Amount. This type of settlement pays income at a certain stipulated rate until the proceeds have been exhausted. The number of installments is governed by the proceeds in the company's hands and by the stipulated rate of interest. This option is most commonly used when a fixed rate of income is more important than the length of the period during which it is to be paid.

5. The Life-Income Option. This option provides a stated income to the beneficiary. The income per $1,000 of proceeds depends upon the length of the period during which payments are to be made, 5, 10 or 20 years, even if the beneficiary chances not to live that long, and on the benficiary's sex and age at the time the payments commence.

Subject to stated minimums, one can arrange to have payments made annually, semi-annually, quarterly or monthly under any of these options.

6. Combination of Options. Rather than choose any particular one of these options, one can arrange to have the company use nearly any combination of them. For example, on a $12,000 policy, one could have $2,000 of the proceeds paid in cash; $5,000 of the proceeds retained at interest until a stated date and then paid as a life income, with payments guaranteed for five years; $2,000 paid out in installments for a fixed period of five years; $1,000 paid out at the rate of $50 per month until exhausted; and the remaining $2,000 paid as a life income, with payments guaranteed for 20 years. This example illustrates the use of six options on one policy. Although such a settlement would be uncommon, it demonstrates the flexibility of planning that is available through proper use of settlement options.

You should use the settlement options that best fit your individual program. Furthermore, since your needs can be expected to change from time to time, you probably will find it advantageous to change them periodically. Thus, your insurance counselor and your attorney should both review your options so as to assure the accomplishment of your goals without adversely affecting your estate plan.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

Iowa Chapter of the American Academy of General Practice

The Vanishing Practitioner?

Despite repeated pronouncements both public and private, the general practitioner has not yet vanished from the American scene, and he has no intention of doing so. In the latest Madisonese language, "The funeral has not yet been finalized." In a recent issue of one of those national "throw away" journals that deal only with the financial aspects of medical practice, the lead article sounded a premature death knell for the G.P. We are reminded of Mark Twain's famous remark that reports of his death had been "grossly exaggerated," and of the funeral scene in HUCKLEBERRY FINN. Like Huckleberry, the G.P. must arise and proclaim that he hopes he has a few years left to live, for if he is dead he surely doesn't feel it.

"Contrary to popular belief, the general practitioner is *not* on his way out"—so reports the Opinion Research Corporation on the basis of a survey. Three-fourths of the American people call their family doctor first, when they need help, and each of them believes that good medical care is centered around his particular family physician. Despite all the advances in medical science, the average citizen still prefers his real-life counterpart of Drs. Kildare, Casey and Morgan to be a warm, personable human being. Almost all requests for doctors in Iowa that come from communities are for general practitioners. Unlike the dinosaurs, the G.P. is *wanted.*

The immediate battle that the individual G.P. must fight is to be found in his own hospital corridors, where he hears constantly that "the G.P. is dying out like the dinosaur." This is said, of course, by specialists whose own areas are being encroached upon by new subspecialties. The dinosaur died out, apparently, when it no longer served a useful purpose and could not adapt itself to its changing environment.

The dinosaur died because it "specialized" in bigness and in brute strength. Thus, its fate perhaps should be cited as a warning to certain specialties that are growing too big, too narrow and too jealous of the rights of others. G.P.'s, individually and collectively, are constantly adapting themselves to new situations. Individually, they are adjusting to local requirements. Collectively, through the American Academy of General Practice, they are changing the physician's national image from the respected horse-and-buggy doctor of the last generation to the respected family physician of today, who does not necessarily attempt to treat *all* conditions, but does have a practical grasp of all the facets and subdivisions of modern medical practice.

Even though the education of medical students is now being left to the specialists, the lead in the equally important postgraduate training has been taken by the American Academy of General Practice, which requires its members to continue attending lectures.

Breadth does not imply shallowness. For those who prefer one of the parts to the whole, there is specialization. For the "Compleat Practitioner," there is the American Academy of General Practice.

Some Children Resist Respiratory Bacteria

A significant number of children are able to resist the respiratory germs to which they are exposed. Other factors besides exposure are involved in the infections by respiratory organisms, according to a report by Henry Stimson Harvey, M.D., and Marjorie Bodwell Dunlap, M.A., in the June issue of AMERICAN JOURNAL OF DISEASES OF CHILDREN, after a study of 351 children from 94 healthy families living in rural communities, for periods of one

REMEMBER THE DATES
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IOWA CHAPTER OF THE AAGP
Hotel Savery, Des Moines

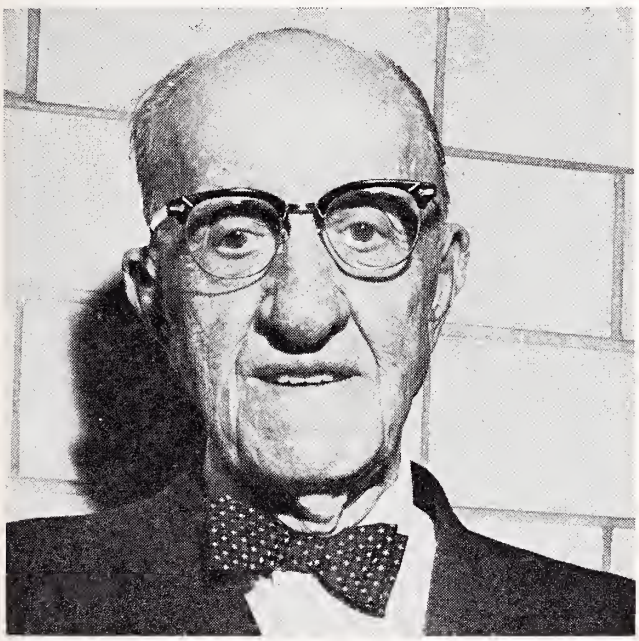
to two years, to determine the incidences of three bacteria—hemolytic streptococcus, hemophilus influenzae and pneumococcus.

Between birth and one or two years, they said, children carried large amounts of the flu and pneumonia germs, but very little streptococcus. Children entering the two- to six-year-old period frequently carried all three organisms, they said. The peak incidence of strep infections came early in the school period, and the incidences of all three organisms gradually decreased after the age of 12. Within this general pattern, there were wide individual differences, particularly in the occurrence of streptococcus. It was not found in all individuals in the susceptible age period, between babyhood and the twelfth birthday, they said.

"Thirty-six per cent of children from one to six years of age, and 26 per cent of those from six to 12 years of age did not acquire the hemolytic streptococcus, even though it was present in their homes. Of those who did acquire it, 60 per cent in the susceptible age groups had it less frequently than would be anticipated from the exposure rates." More than one-third of the 910 strep infections were not shared by members of the same family at the same time, the authors said.

They concluded that "other factors besides exposure are involved in the acquisition of respiratory pathogens, particularly the hemolytic streptococcus."

Outstanding General Practitioner



Iowa's Outstanding General Practitioner of the Year is Edwin B. Walston, M.D., who was selected by IMS delegates at the closing session of the Annual Meeting. Ninety-four-year-old Dr. Walston, the 11th Iowa physician to receive this honor, has been a practicing physician for 69 years, 65 of which have been in Des Moines. He is the oldest member in the Iowa Chapter of the AAGP and one of the five oldest active members in the Academy.

Dr. Walston attended DePaul University, Willeston Academy, Northwestern University, and was graduated in 1893 from Rush Medical School. In 1923, he visited and studied in Germany and Austria, and later, after his return to Des Moines, he was a member of the teaching staff in the Department of Anatomy at the old Drake Medical School. Dr. Walston is a walking history book of Des Moines medicine.

AMA-ERF Money Presented to S.U.I.

Dr. Norman B. Nelson, left, on behalf of the State University of Iowa College of Medicine, accepts a check for $12,922, at the opening session of the Annual Meeting. Presenting the gift, most of which was contributed by Iowa doctors, for the American Medical Association Education and Research Foundation, is IMS chairman of the Board of Trustees, Dr. S. P. Leinbach.

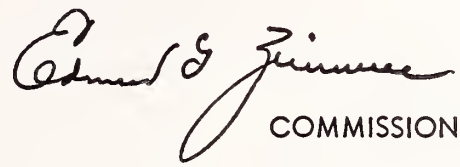
S.U.I.'s gift is part of the 1961 total of $1,303,161 contributed by the nation's physicians for distribution among 86 medical schools. Of the total amount, $202,219 was raised by the Woman's Auxiliary of the AMA. The money is to be used at the discretion of the deans of the various medical schools for special projects or expenses not covered in their budgets.

Presentations of Awards

Dr. W. L. Downing, LeMars, proudly displays the 1962 Merit Award which was presented to him at the annual banquet by Dr. S. P. Leinbach, Belmond. Behind Dr. Downing are Dr. Haddon Carryer, president of the Minnesota State Medical Association, and Mrs. Otto N. Glesne.

Dr. Otto N. Glesne, center, presented the Washington Freeman Peck Award jointly to two Cedar Rapids corporations "in recognition of their interest and cooperation in advancing public understanding of the science of medicine, as well as the purposes and objectives of organized medicine." Accepting the plaques on behalf of their organizations are, left foreground, Mr. Duane Arnold, president of the Iowa Electric Light and Power Company, and on the right, Mr. Douglas Grant, vice-president of television operations, WMT-TV. Dr. Edward R. Annis is pictured on the far left, and Dr. George H. Scanlon, on the far right.

STATE DEPARTMENT OF HEALTH



COMMISSIONER

Immunizations for Hospital Workers

During the past 12 months, the American Hospital Association has issued three warnings regarding the necessity for all hospital workers to become and to remain immunized against certain diseases. The first editorial, in the June 16, 1961, issue of HOSPITALS, was a warning regarding the necessity of immunization against influenza. The second and third editorials, in the March 16 and May 1, 1962, issues, concerned the need for smallpox vaccinations. The May 1 editorial offered the following "guidelines" for a smallpox program:

1. A smallpox immunization program should be conducted under the supervision of the medical staff, or the committee on infections.

2. Because many hospital personnel have not been vaccinated since childhood, or since military service, a fair degree of morbidity (fever, sore arms, malaise) can be anticipated. Therefore, the immunization program should be spread over a period of three to six months, to avoid impairing the functions and services of the hospital.

3. Since untoward reactions may occur in any mass vaccination program (generalized vaccinia, etc.), and since these may lead to legal complications, the vaccination should be on a voluntary basis.

4. Personnel with known allergies or eczematous diseases should either be excluded from the program, or vaccinated only after careful medical evaluation.

5. Provision should be made to remove employees or staff members temporarily from patient-care situations while they are undergoing active reactions or "takes," to avoid the possibility of cross-contamination between the vaccinated persons and patients—particularly patients with skin problems and open wounds.

6. New personnel should be vaccinated prior to employment.

These guidelines are intended to assist administrators in instituting prompt and vigorous action to protect their patients and personnel, and to do so wisely.

The Iowa Department of Health suggests that hospitals add typhoid, paratyphoid, poliomyelitis and adult diphtheria-tetanus toxoid to their lists of recommended immunizations.

Histoplasmosis

Histoplasmosis was added to the list of reportable diseases by the Iowa State Board of Health on January 9, 1962. Although it had not been officially on the list previously, it had nevertheless been considered reportable, and had been reported with increasing frequency during the past few years.

A large majority of the cases reported in Iowa have occurred in the southeastern half of the state. That part of Iowa is on the border of an area centered in the lower Missouri, Mississippi and Ohio river valleys, in which the incidence of skin sensitivity to histoplasmin is high. In the past five years, 81 cases have been reported to the State Department of Health, as follows: three in 1957; 15 in 1958; 17 in 1959; eight in 1960; and 38 in 1961.

Histoplasmosis is caused by a fungus, Histoplasma capsulatum. This microorganism has been isolated from a number of sources, principally soil and debris in caves, chicken houses and other areas contaminated by bird droppings. The fungus thrives best in areas of high humidity and warm temperatures. The occurrence of localized outbreaks among groups of persons who have been exposed to dust from the above mentioned areas suggests that the organisms enter the body through the respiratory tract. The disease is not spread from person to person. Neither does it spread from animals to man, although animals sometimes are infected. It is believed that animals and man become infected from the same source.

Histoplasmosis is a widespread disease, and perhaps three-fourths of the residents of endemic areas have had contact with the organism that causes it, as indicated by the histoplasmin skin test. Most cases are mild and self-limiting, but some are severe. The mild cases are "flu-like." The severe pulmonary type may easily be mistaken for tuberculosis. Physicians frequently use the histoplasmin skin test, x-ray and blood tests to assist them in arriving at a diagnosis.

Physicians may submit blood specimens to the State Hygienic Laboratory, in Iowa City, for complement-fixation tests. For meaningful results, paired specimens are recommended—one taken during the patient's acute phase and another during his convalescence.

Histoplasmin is available in limited amounts. Physicians may request it from the State Department of Health.

REFERENCES

1. Editorial: Histoplasmosis. J.A.M.A., **178**:321, (Oct. 21) 1961.
2. Editorial: Spectrum of histoplasmosis. J.A.M.A., **180**:154, (Apr. 14) 1962.
3. Proceedings of the Conference on Histoplasmosis, Excelsior Springs, Missouri, Nov. 18-20, 1952. Washington, D. C., U. S. Government Printing Office, 1956. (Public Health Service Publication No. 465.)

Morbidity Report for Month of May, 1962

Diseases	1962 May	1962 April	1961 May	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	218	348	223	Hancock, Jefferson, Johnson, Polk
Typhoid fever	0	0	0	
Smallpox	0	0	0	
Measles	1,420	2,855	1,227	Entire state
Whooping cough	7	2	12	Dubuque
Brucellosis	10	9	18	Scott
Chickenpox	193	278	693	Des Moines, Dubuque, Story
Meningococcic meningitis	0	3	1	
Mumps	262	359	743	Boone, Clay, Des Moines, Polk, Scott
Poliomyelitis	0	0	0	
Infectious hepatitis	101	84	229	Fayette, Polk, Scott
Rabies in animals	24	40	32	Dickinson, Linn, Marshall, Sac, Story
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	21	25	21	For the state
Syphilis	71	66	80	For the state
Gonorrhea	87	97	153	For the state
Histoplasmosis	1	3	12	Black Hawk
Food intoxication	272	0	0	Johnson, Linn, Webster
Meningitis (type unspecified)	0	0	1	
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	0	0	
Salmonellosis	5	6	5	Polk
Tetanus	0	0	1	
Chancroid	0	0	0	
Encephalitis (type unspecified)	1	0	0	Appanoose
H. influenzal meningitis	0	0	1	
Amebiasis	0	3	1	
Shigellosis	11	0	5	Polk
Influenza	4	0	11	Polk

Insects Attacking Man and Animals*

Black flies or buffalo gnats (perhaps Simulium meridionales) are present in outbreak numbers in northwestern Iowa. Farmers reported chickens and turkeys killed during late May and early June in Sioux County by the vicious, blood-sucking attacks of these small, hump-backed flies. Dr. R. E. Griffin, city health officer at Sheldon, reported many severe bites on faces, necks and extremities of people.

Historically, these flies have been very important pests in western and northwestern Iowa. Attacks by these flies were reported to have killed a horse belonging to a preacher in Ida County in the 1870's, and all of the horses and mules pulling Army supply wagons between Council Bluffs and Sioux City in the 1860's.

The larvae must have fast-running water in which to live. They attach to rocks in rapids. Presumably, there is only one generation per year, and the larvae live through the winter. The adults emerge in May and June. They like to bite in the eyebrows, along the hairline and behind the ears, and to crawl into shirt necks and sleeves. The victim isn't aware of the bite for several hours—when the bite begins to itch and swell. Bites frequently become infected.

We can't recommend insecticides in running water for any reason—and besides, it's too late for that now. Insecticide fogs are not effective against these day-flying pests. Airplane application of 1 lb. malathion/A might reduce the number of adult insects. Repellents (612, 622, OFF) will give some protection.

*Insect Information Letter No. 5. Ames, Cooperative Extension Service, Iowa State University, June 4, 1962.

Intralesional Injections in Psoriasis

In a double blind study of 12 psoriatic patients, Hasegawa and Livingston* compared the effectiveness of intralesional injections of triamcinolone acetonide, prednisolone tertiary butyl acetate and hydrocortisone acetate in clearing psoriatic lesions. All patients were hospitalized, and all other forms of therapy were avoided. The injections were given deep enough to avoid wheal formation, but were shallow enough to produce a ballooning of the skin. The injections were given every 5 to 7 days, and the results were evaluated 24 hours after the sixth injection.

The lesions injected with the triamcinolone acetonide cleared in from 5 to 16 days, while the prednisolone tertiary butyl acetate-injected sites showed a clearing about one-fifth the diameter of the site injected with triamcinolone. Clearing was not observed in the hydrocortisone acetate-injected lesions. Following the intralesional injections, the central clear areas were generally depressed below the surface.

* Hasegawa, J., and Livingston, W.: Intralesional use of triamcinolone acetonide in psoriasis; double blind study. ARCH. DERM., **85**:258-260, (Feb.) 1962.

Iowa Association of Medical Assistants

We Must Continue Fighting Socialism

A clergyman, addressing a high school graduating class recently, took as his theme: "Have faith in the future." This advice need not be limited to youth going forth into life. It applies to people of every age.

And having faith doesn't mean to sit back complacently in the belief that just because we enjoy freedom of thought, freedom of speech, freedom of worship, and freedom to work in our chosen fields that we shall always have those freedoms. The history of the United States relates the struggles of our people to gain and maintain freedom. We, and the generations that follow us, must be alert to subversive forces intent upon undermining the foundations of our freedom.

We are proud of the position the Iowa Association of Medical Assistants has taken in supporting the American Medical Association in its opposition to the Forand and King-Anderson Bills. However, emergency resolutions and personal letters to our Congressmen are only a first step in this fight. We must not stop there, content in the belief that we have done our bit and that others will follow through. Attempts to enact legislation for federal control of medicine are not new, and the defeat of the King-Anderson Bill will not stop those who have been using every means possible to gain passage for such legislation. We must continue to fight it. If we have faith in the future of medicine as it is being practiced today—with the patient having freedom of choice—and in the future of our jobs and in the work we enjoy, then we must educate ourselves and our patients to the hidden implications and the real intent of this type of legislation. We may lack the eloquence of the politician, but we can counteract that with our sincerity.

"Each one teach one" is a phrase used by educators in the illiterate areas of India. If each one of us can teach one other person what we know of the ills and evils of socialized medicine, and if he in turn teaches one, then we can have faith in the future because we shall have done something today to insure it.

—Helen G. Hughes

Annual In-Service Workshop

Next month we shall be able to give a complete program for the Annual In-Service Workshop for Medical Assistants to be held on the campus of the State University of Iowa, September 23 through 26. The registration fee of $35.00 will cover housing at the Iowa Center for Continuation Study for three nights, beginning on Sunday, September 23; breakfasts Monday through Wednesday mornings; the Sunday night orientation dinner at the Amana Colonies; coffee breaks; all instructional material; and an attendance certificate.

Subjects to be covered this year are:

1. Human Behavior and Its Causes: Why Adults Behave as They Do.
2. Child Psychology: Why Children Behave as They Do.
3. The Importance of Proper English Usage.
4. An Introduction to Medical Terminology.
5. Business Letters.
6. Reception Technics and Appointment Making.
7. Legal Problems in the Physician's Office.
8. Proper Use of the Telephone.

Registration will be limited to the first 50 applicants, so watch for the flier which will be mailed to you and to your employer, and register early.

Public Relations Aids

A leaflet entitled "325 Victims Die of Tetanus Each Year" is available in whatever quantities are desired, from the Iowa Medical Society. It urges patients to renew and maintain their immunity against tetanus, so as to avoid having to undergo the more hazardous emergency immunization after sustaining skin-breaking injuries. The price is $1 per 100, postpaid.

This pamphlet is an excellent one for physicians to enclose as a "stuffer" with their monthly statements to patients.

Also, the Iowa Medical Society can supply billfold-size "individual health records" for distribution to patients. On these, records can be kept, not only of the patient's immunizations, but also of his susceptibilities to antibiotics, his blood type and other data that will be of great importance if he is picked up unconscious, following a traffic accident or other mishap.

Patients appreciate their doctor's efforts to spare them all unnecessary risks.

Woman's Auxiliary News

The Third Regional Rural Health Conference

The Third AMA Regional Rural Health Conference was held in Des Moines on May 18 and 19. The total registration of those attending was just under 200. Since one of the aims of our Auxiliary's rural health program is to learn more about rural health problems, your chairman had hoped that quite a few of our Auxiliary members would be there. County Auxiliary registration was very disappointing, but the conference was highly honored by the presence of both the National Woman's Auxiliary's president, Mrs. Harlan English, of Danville, Illinois, and its president-elect, Mrs. William Thuss, of Birmingham, Alabama. The state presidents from both Wisconsin and Illinois, as well as our Iowa immediate past-president, Mrs. Kilgore, of Des Moines, and our regional chairman, Mrs. E. A. Larsen, of Centerville, were also in attendance.

The conference was opened by Dr. Scanlon, the Iowa Medical Society's new president. Mr. Howard Hill, president of the Iowa Farm Bureau, then gave an excellent address on the conference's theme: Good Rural Health—Our Nation's Wealth. He spoke of the many diseases to which people in rural areas are primarily exposed—rabies, undulant fever, tetanus and allergies, to name just a few. In view of the type of machinery farmers work with, he felt it is surprising that there are not more accidents than there are. He also stated that rural people tend to underestimate the value of preventive medicine, and that they often postpone visits to the doctor until they're in "*real* trouble." He praised the Farm Bureau Women's program, saying that the members have been very active and eager to help disseminate sound health information. Doctors and farmers, Mr. Hill thinks, have several things in common. Perhaps most importantly, both groups are believers in free enterprise and both groups are victims of poor public relations. In today's political climate, it is of the essence, he concluded, that they "stand up and be heard."

A very interesting talk followed, on the Medical Self Help Program designed to help prepare people for a national emergency such as a nuclear attack. Much interest was indicated through the questions that were asked at its conclusion. The conference was told about the pilot classes that have been held in several counties in Iowa and about the teaching kit that is now used in these classes.

The afternoon session began with an informative talk of "Quacks, Medicine and the Law." The topic was developed by two panelists—a representative of the Food and Drug Administration and a speaker from the AMA. They spoke of the thriving vitamin business and stated that if people would spend money on good, wholesome food they would not need the many highly-advertised multi-vitamin products. A good novel on the subject of quackery is TOADSTOOL MILLIONAIRES, and a very good pamphlet, BEWARE OF "HEALTH" QUACKS, by Donald Cooley, is available from the AMA publications office. The well-known trade names of many products were mentioned, and examples were given of how the gullible public is often victimized. It was sad to hear that cancer "cures" comprise the largest single area of medical quackery. Arthritis "cures" might perhaps rank next. The panelists had a large display of various kinds of quack "cures" that were interesting—e.g., turtle oil, royal jelly, magic spikes, amulets, zinc and copper plates to be worn in the shoes, etc.

Dr. William Hagen, director of the National Animal Disease Laboratory at Iowa State University, spoke on "Animal Diseases That Endanger Human Health." Something like 100 or more such diseases are now known. They are transmitted by direct contact, and hence they are most often found in rural areas. The prevalence of rabies was mentioned. It is often found in squirrels, cats, skunks and bats, as well as in dogs.

Dr. Clyde Berry, of the Institute of Agricultural Medicine at the State University of Iowa, concluded the afternoon's program with a discussion of poison dangers on the farm. He left his audience with seven main points to keep in mind: (1) Try to learn more about how chemicals affect the body. (2) Use the least dangerous chemical. (3) Get rid of the original containers when emptied. (4) Do not store toxic chemicals in containers other than the originals, such as pop bottles, milk bottles, etc. (5) Minimize every form of contact. (6) Bathe frequently. (7) Do not wear contaminated clothing.

The evening banquet was highlighted by two fine speeches—one by Mrs. Harlan English, our Woman's Auxiliary president, and the other by the Reverend Robert Varley, of Salisbury, Mary-

land, on "Medicine's Mission in a Changing Culture."

On Saturday, the morning program moved along briskly, beginning with three panelists on the subject of health insurance. They felt that the health needs of the people can best be cared for through voluntary insurance. There was also an excellent presentation of the Illinois Student Medical Loan Program, a cooperative endeavor of the Illinois Farm Bureau and the Illinois Medical Society. Its purpose is to interest medical students in choosing rural areas in which to practice. The speakers seemed to feel that the program has been highly successful.

Dr. Marvin Anderson, associate director of the Cooperative Extension Service in Agriculture and Home Economics at Iowa State University, said in summarizing the conference, that he feels there is a real need for sound planning and directed action for health groups today. We share many problems of communication, he said, and need to seek common goals.

—MILDRED LEINBACH (Mrs. S. P.)
Rural Health Chairman

COUNTY AUXILIARIES

DALLAS-GUTHRIE

The Dallas-Guthrie Medical Auxiliary met in Guthrie Center on Thursday evening, May 17. A fine dinner was served by the Rosary and Altar Society of St. Mary's Catholic Church.

The business meeting was held in one of the most interesting homes of Guthrie Center, that of Mrs. Maude Bower, an Army wife. In their extensive travels, the Bowers have collected many interesting mementos.

The president, Mrs. R. F. Deranleau, of Perry, conducted the business meeting. Reports of the state meeting were given. A short memorial was held for one of our faithful members, Mrs. Peter Beckman, of Perry, who had passed away in April. She was a charter member of this Auxiliary, which was organized in 1929. A memorial was given to the Nurses Fund and the A.M.E.F. in her memory.

The president urged that all members and their friends write their Congressmen, voicing their disapproval of the King-Anderson Bill.

MRS. CHARLES E. PORTER, *Secretary*

MARION

A luncheon meeting of the Marion County Medical Auxiliary was held at the Maple Buffet, in Knoxville, on Tuesday, April 24, at 1:00 p.m. Mrs. D. A. Mater presided at the business meeting.

The following officers were elected for 1962-1963: president, Mrs. D. A. Mater; vice-president, Mrs. T. D. Clark; secretary, Mrs. T. Ford; and treasurer, Mrs. C. R. Burroughs.

A report was given on the Doctors' Day breakfast, held at the Maple Buffet, at which time each doctor was presented with a red carnation.

Mrs. T. D. Clark and Mrs. D. A. Mater represented our group at the State Board meetings that were held at the Hotel Savery, in Des Moines, on May 13 and 15. On Tuesday, May 15, eight members attended the Annual Meeting luncheon where the Marion County members were in charge of decorations for four tables. A spring May-pole theme was used, and Mesdames Ralston and Byrnes served as table hostesses.

A farewell luncheon party was held for Mrs. A. L. Montes and Mrs. D. H. Hake on May 22. Our best wishes go with them as they leave for Kansas and California. We shall miss them.

A joint meeting with the Oskaloosa group at the Holland House, in Pella, on June 12, will be reported next month.

Report of the 1962 Annual Meeting Committee

The Annual Meeting Committee, following established procedure, consisted of the following members:

President—Mrs. B. F. Kilgore
President-Elect—Mrs. A. C. Richmond
Local Arrangements—Mrs. F. C. Coleman and co-chairman, Mrs. D. H. Kast
Area Chairman—Mrs. N. A. Schacht
1st Vice President—Mrs. C. A. Trueblood
2nd Vice President—Mrs. L. V. Larsen
Area Councilors—District II—Mrs. G. I. Tice
District V—Mrs. H. W. Smith
District IX—Mrs. L. F. Catterson
District X—Mrs. I. K. Sayre
Credentials and Registration—Mrs. R. H. Foss
Recording Secretary—Mrs. F. L. Poepsel
Finance Secretary—Mrs. E. A. Vorisek
H.E.L.F. Chairman—Mrs. H. C. Merillat
Exhibit Chairman—Mrs. F. M. Burgeson
Publicity Chairman—Mrs. W. W. Sands
Senior Past President of Board—Mrs. H. C. Merillat
Administrative Secretary—Mrs. Hazel Lammey

Meetings of the committee were held in conjunction with State Board meetings, also, on September 18, 1961, and February 8, and May 9, 1962. Duties were assigned according to the previously outlined plan.

The president, Mrs. B. F. Kilgore, and program chairman, Mrs. L. V. Larsen, essentially outlined

the business sessions to be held, and suggested guests and entertainment.

Mrs. Kilgore arranged for the two speakers, Dr. Edward R. Annis and Mrs. William G. Thuss. All local Des Moines arrangements were handled by Mrs. F. C. Coleman: Dutch Treat Supper, physical arrangements at Hotel Savery, and entertainment contacts. Decisions concerning these arrangements were always approved by the committee and Mrs. Kilgore, with consecutive board recommendations and approval.

Registrations and credentials were handled by Mrs. Foss and Mrs. Coleman with the unlimited aid and facilities of IMS and Mrs. Lammey. Polk County Auxiliary members manned the Registration Desk throughout the meeting.

The traditional hospitality room was open all day Monday and Tuesday morning, under the direction of Mrs. Trueblood and Mrs. Sayre.

Central Area participation was provided through the offices of councilors from the four Central districts. Decorations for Monday's Projects Brunch and Tuesday's president's luncheon were made by County Auxiliaries from these districts. Hostesses for the Hospitality Room were recruited from District X's members-at-large. Auxiliaries providing the centerpieces did so at their own expense, and are to be congratulated on their generosity and ingenuity.

The Art Exhibit, under the direction of Mrs. F. M. Burgeson and displayed at the Veterans Auditorium, was an unqualified success.

Tuesday evening's Caduceus Capers and the social hour preceding it were planned and executed by Mrs. H. C. Merillat, and the social hour was sponsored by the Standard Medical and Surgical Company. The committee felt that this occasion was most successful and well-received. (In previous years the banquet and dance have been held separately.) The State Auxiliary officers would appreciate hearing more from those attending as to their preference.

Mrs. Hazel Lammey and Mrs. Jane Penn, her secretary, coordinated all of the mailings and releases, and were of indispensible assistance to the committee.

The cooperation and assistance by the entire Auxiliary in carrying out the committee plans played the greatest part of all in the success of the meeting. Mrs. Kilgore and Mrs. Coleman were mainly responsible for the wonderful program—from the inspiring and provocative addresses of Mrs. Thuss and Dr. Annis to the delightful musical interlude with Mrs. Pat Valentine and the hilarious "Fashion Fantasy" staged and presented by Black Hawk County Auxiliary.

The committee would like to thank every delegate and member attending for her participation and enthusiasm at the meeting. The area system for planning this convention seems to have achieved its goal of stimulating wider participation by individuals and by county Auxiliaries.

—MRS. NORMAN A. SCHACHT
Area Chairman, Convention Planning, 1962

Tips for Safety

RECREATION SAFETY—BOATING AND WATER

1. Make sure children under 12 are always supervised by an adult when swimming.

2. Use a rope and float line to separate the deep end of a swimming pool from the shallow end.

3. Always use the Buddy System when swimming.

4. Prohibit horseplay in and around a swimming area. Only competent divers should use the diving board.

5. Change pool water frequently, and use a recommended disinfectant.

6. Learn proper small-boat handling by taking a Power Squadron or Red Cross course.

7. Know and adhere to right-of-way boating rules.

8. Know the meanings of buoys, running lights and passing signals, and storm warnings. Always head for shore when foul weather is imminent.

9. Stay seated as much as possible while in a boat. Learn how to enter and leave it safely.

10. Use U. S. Coast Guard-approved life preservers. Small children should wear life vests or jackets at all times when boating. Teach them to stay close to the boat if it capsizes.

11. Check your boat's carrying capacity, and don't overload it.

12. Learn how to swim.

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

President—Mrs. A. C. Richmond, 1132 Aven Avenue, Fort Madison

President-Elect—Mrs. G. J. McMillan, 436 Avenue C, Fort Madison

Recording Secretary—Mrs. N. A. Schacht, 1025 North 23rd Street, Fort Dodge

Corresponding Secretary—Mrs. F. L. Poepsel, Box 176, West Point

Treasurer—Mrs. M. B. Cunningham, Norwalk

MINUTES OF THE 1962 SESSIONS OF THE HOUSE OF DELEGATES

Iowa Medical Society

Des Moines, Iowa — May 13 - 16, 1962

(Alphabetical Index to the Minutes Can Be Found on Page 498)

SUNDAY SESSION, MAY 13, 1962

The House of Delegates of the Iowa Medical Society was called to order by the speaker, Dr. C. V. Edwards, Sr., of Council Bluffs, at 10:00 a.m., Sunday, May 13. The House of Delegates approved the taking of attendance by signed registration cards. There were 113 delegates, 8 voting alternates and 18 ex-officio members present.

County	*Delegate*	*Alternate*
Adair		
Adams	C. L. Bain	
Allamakee		
Appanoose	E. A. Larsen	
Audubon		
Benton		
Black Hawk	R. C. Miller	
	F. G. Loomis	
	G. D. Phelps	
	C. D. Ellyson	
		R. D. Acker
Boone	G. H. Sutton	
Bremer	V. H. Carstensen	
Buchanan	R. L. Knipfer	
Buena Vista	P. W. Brecher	
Butler	F. A. Rolfs	
Calhoun	C. R. Wilson	
Carroll	J. M. Tierney	
Cass	E. M. Juel	
Cedar		
Cerro Gordo	J. W. Lannon	
	H. W. Morgan	
	F. W. Saul	
Cherokee		
Chickasaw	D. L. Trefz	
Clarke	G. I. Armitage	
Clay	D. H. King	
Clayton	E. G. Kettelkamp	
Clinton	H. A. Amesbury	
	M. E. Barrent	
Crawford		
Dallas-Guthrie	W. A. Castles	
	R. J. Peterson	
Davis	P. T. Meyers	
Decatur	E. E. Gamet	
Delaware	R. E. Clark	
Des Moines	F. G. Ober	
Dickinson	D. F. Rodawig, Sr.	
Dubuque	R. J. McNamara	
	D. F. Ward	
	K. K. Hazlet	
Emmet		R. L. Cox
Fayette	A. F. Grandinetti	
Floyd	R. M. Nielsen	
Franklin	R. E. Munns	
Fremont		
Greene		
Grundy		
Hamilton	G. A. Paschal	
Hancock-Winnebago	J. R. Camp	
	J. T. Mangan	
Hardin	J. J. Shurts	
Harrison	J. W. Barnes	
Henry		
Howard	Abner Buresh	
Humboldt	I. T. Schultz	
Ida		
Iowa		
Jackson		
Jasper	J. W. Billingsley	
Jefferson	K. H. Strong	
Johnson	J. M. Layton	C. E. Radcliffe
Jones	C. E. Schrock	
Keokuk	K. R. Cross	C. R. Eicher
Kossuth	W. M. Kirkendall	
Lee	A. C. Wise	
Linn	T. T. Bozek	
	L. D. Caraway	
	R. L. Augspurger	
	M. G. Bourne	
	L. C. Pumphrey	
	J. J. Keith	
	J. J. Redmond	
	L. J. Halpin	
	W. J. Moershel	
Louisa		
Lucas	D. D. Watson	
Lyon	G. D. Bullock	
Madison	J. E. Evans	
Mahaska	G. S. Atkinson	
Marion		Peter Van Zante
Marshall	O. D. Wolfe	
	L. O. Goodman	
Mills	M. L. Scheffel	
Mitchell	T. E. Blong	
Monona	J. L. Garred	
Monroe		
Montgomery	Oscar Alden	
Muscatine		
O'Brien	J. C. Peterson	
Osceola		F. B. O'Leary
Page	G. H. Powers	
Palo Alto	G. H. Keeney	
Plymouth		F. C. Bendixen
Pocahontas	J. M. Rhodes	
Polk	J. T. Bakody	
	E. T. Burke	
	D. F. Crowley, Jr.	
	C. W. Losh, Jr.	
	N. W. Irving, Jr.	
	M. T. Bates	
	L. O. Ely	
	R. B. Stickler	
	M. H. Dubansky	
	J .T. McMillan	
	P. K. Hughes	
	B. M. Merkel	
	W. J. Morrissey	
Pottawattamie	C. V. Edwards, Jr.	
	F. E. Marsh, Jr.	
	F. N. Weber	
Poweshiek	S. D. Porter	
Ringgold	D. E. Mitchell	
Sac	J. W. Gauger	
Scott	P. E. Gibson	
	J. H. Sunderbruch	
	J. F. Bishop	
	W. S. Pheteplace	
Shelby	G. E. Larson	
Sioux	M. O. Larson	
Story	G. E. Montgomery	
	J. D. Conner	
Tama	C. W. Maplethorpe	
Taylor		
Union	D. L. York	
Van Buren		
Wapello	E. W. Ebinger	
	K. E. Lister	
Warren	Amalgamated with Polk County	
Washington		C. A. Boice
Wayne	C. N. Hyatt	
Webster	H. H. Kersten	
	D. E. Tyler	
Winneshiek	R. M. Dahlquist	
Woodbury	J. W. Bushnell	
	P. M. Cmeyla	
	R. C. Larimer	
Worth		
Wright	C. P. Hawkins	

DELEGATES AT LARGE

H. W. Mathiasen J. W. Billingsley

OFFICERS PRESENT AS EX-OFFICIO MEMBERS OF THE HOUSE

O. N. Glesne	M. A. Blackstone
G. H. Scanlon	G. E. McFarland, Jr.
L. F. Hill	J. W. Ferguson
R. F. Birge	L. V. Larsen
H. J. Smith	L. W. Swanson
C. V. Edwards, Sr.	C. H. Stark
S. P. Leinbach	W. L. Downing
C. W. Seibert	Fred Sternagel
J. E. Houlahan	N. B. Nelson

Minutes of the April 26, 1961, meeting of the House of Delegates were approved as published in the July, 1961, JOURNAL OF THE IOWA MEDICAL SOCIETY.

Reports as published in the 1962 HANDBOOK FOR THE HOUSE OF DELEGATES were approved, except the report of the Medicolegal Committee and the report of the Committee on Radiation Control, which were referred to the Reference Committee on Legislation and Public Relations for study and report.

Reports of Officers

FROM THE OFFICE OF THE SECRETARY

The duties of this office include maintaining membership and dues records; conducting the official correspondence; and notifying members of meetings, officers of their election, and committee members of their appointments and duties. The secretary is also responsible for preparing minutes of all official meetings of the Society. Insofar as it is in his power, he uses the printed matter, correspondence and influence of his office to aid the councilors in organizing and improving the component societies, and in extending the power and usefulness of the Society.

The following points up some of the more important activities of the secretary during the past year:

1962 ANNUAL MEETING

The Program Committee for the 1962 Annual Meeting has completed the program, and it will be published in the April issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY. Hand programs will be distributed at the time of the meeting. The office has cooperated with district councilors in organizing their caucuses in preparation for the Annual Meeting, including organization of the Nominating Committee.

HOUSE OF DELEGATES

Proceedings of the 1961 sessions of the House of Delegates were published in the July, 1961, JOURNAL. The usual administrative procedures in connection with the House of Delegates directives have occurred. As a part of the 1962 Annual Meeting, the House of Delegates will hold its first session on Sunday, May 13, at 10:00 a.m. Reference Committee hearings will begin as soon as possible on Sunday afternoon following adjournment of the House. The final session of the House of Delegates will be held at 8:00 a.m., Wednesday, May 16.

EXECUTIVE COUNCIL

Three meetings of this interim policy-making body have been held since the 1961 Annual Meeting; a fourth is scheduled on April 19. Progress reports from important committees of the Society were presented to the Executive Council for its action in some instances and for information in others. These included: Relative Value Study Committee, Subcommittee on Rehabilitation, Automotive Safety, National Emergency Medical Service, King-Anderson Committee, Osteopathic Committee, Subcommittee on Medical Services to the Indigent, Blood Banking Committee, Legislative Committee, Maternal and Child Health Committee, Subcommittee on Interprofessional Activities, Subcommittee on Prepayment Medical Care, Group Insurance. Miscellaneous items: IPPL-AMPAC, Religion and Medicine, Iowa participation in the Cornell Automotive Injury Research Project, Medical Self-Help Training Program, Medical Quackery, Health Careers, the Society's official seal, group accidental death and dismemberment policy, miscellaneous communications and resolutions from county societies and other organizations.

JUDICIAL COUNCIL

The Judicial Council, the Society's judicial authority, has held four meetings since the 1961 Annual Meeting; its fifth session is scheduled on April 19. At the organizational meeting of the Council, which was held on April 26, 1961, Dr. J. E. Houlahan of Mason City was elected Chairman, and Dr. L. V. Larsen of Harlan was elected Secretary. The Judicial Council's major responsibility has been the approval of applicants for IMS membership. It has considered and disposed of various items of business involving memberships, ethics and other judicial matters.

COMMITTEES

The Society has 49 standing and special committees, most of which have met at least once during the year. Reports covering the activities of these groups appear elsewhere in this HANDBOOK, or will be presented as oral reports at the first session of the House of Delegates in May. To date, approximately 130 official committee meetings have been held, and prior to the Annual Meeting there will be numerous additional ones. These totals do not include informal meetings of committee members, or the conferences that have taken place by telephone.

LIAISON WITH COUNTY MEDICAL SOCIETIES

The President and Executive Director have met with members representing approximately 45 county medical societies. These have been informal meetings, scheduled generally on Mondays and Tuesdays of each week during October, November, February and March. Other officers and members of the Society, as well as staff personnel, have met with a number of county medical societies during the year. Programs of these meetings included various subjects and projects of interest to the Society members.

FIELD SERVICE

The Society's two field secretaries, Messrs. Gerald Buckles and Morris Bandy, have been active during the past year in contacting county medical societies and individual doctors, as well as other organizations, to promote numerous projects. The major part of their time has been devoted to activating county societies,

individual physicians, and allied groups to implement programs in opposition to the enactment of King-Anderson type legislation. In addition, the field men have been responsible for arranging the county meetings attended by the President and Executive Director, as well as county Medical Assistants meetings sponsored by state and county medical societies, Blue Shield and Blue Cross.

MAILINGS

Mailings during the year included: General News Bulletins, 8; Legislative Bulletins, 4; Legislative Contact Men, 2; Public Relations, 1; "In the Public Interest" to members of the Iowa Legislature, Iowa's Congressional delegation in Washington, all news outlets, 12; Deputy Councilor Newsletters, 3; pamphlet announcing Society's name change to important state and national organizations, press services, etc. There has been a constant flow of literature on national and state legislative issues to the membership and, in particular, to county King-Anderson committees. In addition, this literature has been distributed to many other organizations and their members.

NATIONAL CONFERENCES

AMA conferences attended by one or more representatives of the Iowa Medical Society have included the Clinical and Annual Sessions, Conference on Aging, Conferences on Disaster Medical Care, Institute on Administration and Public Relations, Congress on Medical Quackery, Congress on Prepaid Health Insurance, Conference on Mental Health, Legislative Conference, Conference for Attorneys and Executive Secretaries, Congress on Occupational Health, Conference on Medical Aspects of Sports, Conference on Medical Service, Woman's Auxiliary Conference, Conference on Medical Education and Licensure.

Other national meetings attended by IMS representatives: University of Michigan Conference on Aging, Conference of State Government Representatives, Joint Council to Improve Health Care of the Aged, Michigan Congress of the Professions.

REGIONAL CONFERENCES

AMA Regional Legislative Conference, North Central Medical Conference, Chamber of Commerce Regional Meeting, Minnesota State Medical Association Annual Meeting, State Medical Society of Wisconsin Annual Meeting, Illinois State Medical Society Annual Meeting. Dr. Otto N. Glesne of Fort Dodge was named president-elect of the North Central Medical Conference at the 1961 meeting.

STATE CONFERENCES

Conference on Aging, Blue Cross-Blue Shield Sales Meeting, Annual Meeting of the Iowa Chapter of the American Academy of General Practice, Iowa Nursing Home Association Annual Meeting, Iowa Dental Association Annual Meeting, Iowa Veterinary Medical Association Annual Meeting, United Nations Day Observance, School Health Workshops, WHAM (Women Help American Medicine), IMS-Blue Shield Field Staff Conference, Public Health Association, Hawkeye Science Fair, Senior Day, Iowa Interprofessional Association, Annual Meetings of Blue Cross and Blue Shield, Civil Defense Conference, Iowa Society of Association Executives.

IOWA REPRESENTATION AT NATIONAL LEVEL

The Society has maintained its close liaison with the AMA and other national organizations. The IMS is represented on the AMA Council on Rural Health by Dr. S. P. Leinbach of Belmond, on the Committee on Federal Medical Services by Dr. D. C. Conzett of Dubuque, on the Council on Legislative Activities by Dr. F. C. Coleman of Des Moines. The IMS Executive Director is President Elect of the National Association of Medical Society Executives. Miss Tina Preftakes, Assistant to the Director, is a member of the Editorial Board of "The Executive," the house organ of the National Association of Medical Society Executives.

SERVICES TO THE WOMAN'S AUXILIARY

Services and facilities of the IMS headquarters office are available at all times to the Woman's Auxiliary to assist it in implementing its projects. The bulk of this work is handled by Mrs. Hazel Lammey, an Executive Assistant who is staff secretary to the Auxiliary. The staff assists the Woman's Auxiliary in arranging its Annual Meeting, preparation of its annual reports, and the maintenance of membership records and roster, as well as the preparation and issuance of the WOMAN'S AUXILIARY NEWS.

IMS MEMBERSHIPS

Memberships in the Iowa Medical Society during the year 1961 increased to 2,475 as compared to 2,461 for the preceding year. There were 65 counties in which 100 per cent of the county society members held membership in the IMS, representing a slight decrease from 1960 because of Warren County's amalgamation with the Polk County Medical Society. In 1961 there were 54 eligible non-members, as compared with 57 in 1960. The number of ineligible non-members increased from 39 in 1960 to 51 in 1961. Physicians retired or not in practice decreased from 97 in 1960, to 93 in 1961. The total membership percentage in 1961 remains at 98.

COUNTY SOCIETIES HAVING 100 PER CENT MEMBERSHIP IN IMS IN 1961

Adair	Hardin	Page
Adams	Harrison	Palo Alto
Allamakee	Henry	Plymouth
Audubon	Howard	Pocahontas
Boone	Humboldt	Polk
Buchanan	Ida	Ringgold
Butler	Iowa	Sac
Calhoun	Jackson	Scott
Cerro Gordo	Kossuth	Shelby
Chickasaw	Lee	Sioux
Clarke	Lucas	Story
Clay	Lyon	Tama
Crawford	Madison	Taylor
Dallas-Guthrie	Mahaska	Union
Davis	Marshall	Van Buren
Delaware	Mills	Wapello
Des Moines	Monona	Washington
Dickinson	Monroe	Wayne
Franklin	Montgomery	Webster
Greene	Muscatine	Winneshiek
Grundy	O'Brien	Wright
Hamilton	Osceola	

1961 IMS MEMBERSHIP RECORD

County	Active Members	Associate Members	Resident Members on Resident License	Eligible Non-members	Ineligible Non-members	Not in Practice or Retired	Percentage
Adair	3	1	..	..	..	..	100
Adams	4	..	..	..	..	..	100
Allamakee	8	..	..	..	..	2	100
Appanoose	11	..	..	1	..	2	92
Audubon	4	..	..	..	..	1	100
Benton	13	..	..	1	..	..	93
Black Hawk	116	..	..	1	..	..	99
Boone	16	1	..	..	..	..	100
Bremer	16	..	..	1	..	..	94
Buchanan	28	..	..	..	8	1	100
Buena Vista	12	1	..	1	..	..	92
Butler	8	..	..	..	..	..	100
Calhoun	13	..	..	..	..	1	100
Carroll	21	1	..	1	..	..	96
Cass	11	..	..	1	..	..	92
Cedar	9	..	..	1	..	..	89
Cerro Gordo	65	1	..	..	..	..	100
Cherokee	30	..	..	1	12	1	97
Chickasaw	11	1	..	..	..	..	100
Clarke	6	..	..	..	..	..	100
Clay	14	..	..	..	..	..	100
Clayton	9	1	..	2	..	..	82
Clinton	46	2	..	3	2	..	94
Crawford	7	..	..	..	..	..	100
Dallas-Guthrie	25	..	..	..	6	..	100
Davis	13	..	..	..	..	..	100
Decatur	6	..	..	1	..	1	86
Delaware	9	..	..	..	..	1	100
Des Moines	45	2	..	..	..	..	100
Dickinson	9	..	..	..	..	..	100
Dubuque	74	3	..	4	..	..	95
Emmet	15	..	..	1	..	..	94
Fayette	21	..	..	1	..	1	96
Floyd	15	..	..	1	..	..	94
Franklin	8	..	..	..	..	..	100
Fremont	6	..	..	1	..	..	86
Greene	15	..	..	..	..	2	100
Grundy	7	..	..	..	..	..	100
Hamilton	11	..	..	..	1	..	100
Hancock-Winnebago	14	..	..	1	1	1	93
Hardin	18	1	..	..	..	..	100
Harrison	8	..	..	..	..	3	100
Henry	22	..	..	..	5	1	100
Howard	8	..	..	..	..	..	100
Humboldt	8	..	..	..	..	..	100
Ida	6	..	..	..	..	2	100
Iowa	14	..	..	..	..	..	100
Jackson	12	..	..	..	..	..	100
Jasper	20	..	..	1	..	..	95
Jefferson	11	..	..	1	..	1	92
Johnson	209	1	..	4	..	5	98
Jones	14	..	..	3	..	..	81
Keokuk	6	..	..	1	..	..	86
Kossuth	12	..	..	..	..	2	100
Lee	39	..	..	..	..	1	100
Linn	128	3	..	3	1	6	98
Louisa	3	..	..	2	..	..	60
Lucas	6	..	..	..	..	..	100
Lyon	6	..	..	..	..	..	100
Madison	7	..	..	..	..	..	100
Mahaska	19	1	..	..	..	..	100
Marion	20	..	..	3	..	7	87
Marshall	39	..	..	..	..	..	100
Mills	4	..	..	..	3	2	100
Mitchell	11	..	..	1	..	1	92
Monona	10	..	..	..	..	1	100
Monroe	5	1	..	..	..	..	100
Montgomery	13	..	..	..	..	..	100
Muscatine	20	1	..	..	1	1	100
O'Brien	13	1	..	..	..	..	100
Osceola	4	..	..	..	..	..	100
Page	21	1	..	..	6	1	100
Palo Alto	9	..	..	..	..	..	100
Plymouth	11	..	..	..	..	1	100
Pocahontas	8	..	..	..	..	1	100
Polk	319	15	4	..	2	22	100
Pottawattamie	72	..	..	1	1	5	99
Poweshiek	7	..	..	5	..	..	58
Ringgold	2	..	..	..	..	..	100
Sac	9	..	..	..	..	..	100
Scott	103	..	..	..	..	2	100
Shelby	9	..	..	..	..	2	100
Sioux	12	..	..	..	..	1	100
Story	46	1	..	..	..	1	100
Tama	12	..	..	..	..	..	100
Taylor	3	..	..	..	..	..	100
Union	14	..	..	..	..	..	100
Van Buren	3	..	..	..	..	..	100
Wapello	53	..	..	..	..	..	100
Warren amalgamated with Polk							
Washington	12	..	..	..	..	2	100
Wayne	7	..	..	..	..	..	100
Webster	57	..	..	..	..	2	100
Winneshiek	9	..	..	..	..	..	100
Woodbury	119	2	..	4	2	5	97
Worth	4	..	..	1	..	..	80
Wright	18	1	..	..	..	1	100
	2,428	43	4	54	51	93	98

AMA MEMBERSHIP

The members of the Iowa Medical Society who were active members of the American Medical Association in 1961 numbered 2,394 (including active dues-exempt because of life membership, residency or military service). In addition 43 held associate memberships, 7 held service memberships (in Veterans Administration) and 4 held resident memberships (members on temporary or resident licenses) in the AMA.

The 2,394 active AMA memberships in 1961 entitled Iowa to three AMA delegates. The 1961 AMA membership was 96.7 per cent of the total Iowa Medical Society membership.

R. F. BIRGE, M.D., *Secretary*

REPORT OF THE TREASURER

The following financial statements for the calendar year 1961 outline the economic position of the Iowa Medical Society. For the first year since 1955, the expenses of the Society exceeded income. The deficit was due in large part to the decrease in revenue for advertising in the JOURNAL OF THE IOWA MEDICAL SOCIETY. Advertising revenue for 1961 was approximately $15,000 less than for 1960. In view of these facts, the net worth of the Society has been decreased.

A contribution from the Baldridge-Beye Memorial Fund in the amount of $2,146.00 was made to the Iowa Medical Society Educational Fund. The contribution consists of the assignment of $1.00 for each dues-paying member of the Iowa Medical Society.

H. J. SMITH, M.D., *Treasurer*

IOWA MEDICAL SOCIETY

Balance Sheet—December 31, 1961

ASSETS

Current Assets:		
IMS Checking Accounts	$ 3,740.68	
IMS Savings Accounts	20,642.27	
Corporation Stock	25,741.35	
Government Bonds	49,000.00	
Medicare	5,000.00	
Notes Receivable (Baldridge-Beye)	1,378.00	
Pension Insurance—Due From Employees	867.46	
Total Current Assets		$106,369.76
Fixed Assets:		
Land	$ 5,000.00	
Building $45,275.85		
Less: Reserve for Depreciation 19,000.00	26,275.85	
Provision for Building Fund	19,000.00	
Net Fixed Assets		$ 50,275.85
TOTAL ASSETS		$156,645.61

LIABILITIES AND NET WORTH

Liabilities:		
State Personal and Property Tax	$ 1,819.34	
Baldridge-Beye Memorial Fund:		
Balance 12-31-61	1,378.00	
TOTAL LIABILITIES		$ 3,197.34
Net Worth:		
Balance 1-1-61 $158,880.22		
Less: Net Expense 1961 8,590.20	$150,290.02	
Investment Income in Corporation Common Stock (Net):		
Balance 1-1-61 $ 2,544.43		
Add: Net Income 1961 613.82	$ 3,158.25	
Total Net Worth		$153,448.27
TOTAL LIABILITIES AND NET WORTH		$156,645.61

IOWA MEDICAL SOCIETY
STATEMENT OF INCOME AND EXPENSES

For the Year Ended December 31, 1961

Income for the Year 1961:		
Dues—State Society	$170,811.68	
Interest on Government Securities	1,391.32	
Interest on Savings Accounts	699.15	
Medicare	5,766.31	
Miscellaneous	268.30	
AMA Collection Commission	519.50	
TOTAL INCOME		$179,456.26
Expenses for the Year 1961:		
Annual Session (Net)	$ 317.22	
Baldridge-Beye Memorial Fund	2,146.00	
Council Expense	1,476.76	
County Society Services	485.47	
Depreciation—Building	4,500.00	
Dues and Subscriptions	1,522.30	
General Administrative Expense	1,485.57	
Insurance	2,140.85	
JOURNAL (Net)	12,308.29	
Legal Expense	6,000.00	
Light, Gas and Water	1,057.72	
Office Furniture and Fixtures	1,148.89	
Office Stationery and Supplies	4,204.73	
Pension Insurance	3,947.58	
Postage	4,307.74	
Repairs and Maintenance	344.85	
Salaries	80,729.74	
Salaries—Outside Secretary	791.76	
Service Contracts—Machines	508.30	
Taxes:		
Personal and Property	1,819.34	
Social Security Taxes	1,868.82	
Unemployment—Federal	148.19	
Unemployment—State	107.56	
Use Tax	750.21	
Telephone and Telegraph	4,243.02	
Travel—Officer	5,189.47	
Travel—Salaried Employee	11,516.68	
Trustee Expense	1,848.27	
Woman's Auxiliary	1,421.35	
Committee Expense:		
Grievance	1,195.36	
Legislative	16,091.70	
Medical Service	2,241.85	
Public Health	396.79	
Public Relations	5,108.02	
Other Committees	4,676.06	
TOTAL EXPENSE		$188,046.46
Net Expense for 1961		$ 8,590.20

BOARD OF TRUSTEES

The Board of Trustees will present a comprehensive report of its activities at the first session of the House of Delegates in May. Since, except for the development of policy, the Board of Trustees performs duties approximately the same as those of the board of directors of any corporation, it is involved in most of the Society's activities, and thus the entire contents of this HANDBOOK, constitute an accounting of the Board's fulfillment of its responsibilities. Special attention should be given to the reports of the secretary and the treasurer.

The members are reminded that a financial report, covering a 10-month period in 1961, was transmitted to the full membership in November, 1961.

Report of the Judicial Council

FIRST DISTRICT

One of the most outstanding medical problems to occur in our District was a rather intense epidemic of hepatitis. The handling of that situation by the local physicians in cooperation with the state and federal

health authorities was a very rewarding experience. The Crippled Children's Clinics have been very well attended and have been a valuable part of the medical care of these communities. The response of the physicians in this area to the preceptorship program has been only fair, and should be improved. A few young doctors have entered our District in general practice, but the number has been far too small and very few of these men have shown interest in settling in the smaller communities.

There has been an increase in the formation of partnerships among the physicians in this District, and there has been some new private medical-office construction. Floyd County will have a new county hospital within the next two years.

King-Anderson committees were set up in our District largely because of the interest shown at the state level and because a representative from the State Society encouraged and helped considerably in the program.

The Deputy Councilors and all other physicians in this District have supported me and cooperated to a rewarding degree.

CLARKSON L. KELLY, JR., M.D., *Councilor*

Deputy Councilors:

C. R. ROMINGER, M.D., Allamakee
R. E. SHAW, M.D., Bremer
M. J. MCGRANE, M.D., Chickasaw
P. R. V. HOMMEL, M.D., Clayton
A. F. GRANDINETTI, M.D., Fayette
E. V. AYERS, M.D., Floyd
P. A. NIERLING, M.D., Howard
T. E. BLONG, M.D., Mitchell
E. F. HAGEN, M.D., Winneshiek

SECOND DISTRICT

Most of the counties of the Second District again carried on immunizations, school examinations, and tuberculosis surveys. Worth County, a largely rural area, tried a county-wide program for tetanus immunization, but with little success. The physicians there feel that further education along this line is necessary.

Cerro Gordo County has continued presenting a series of excellent scientific programs on a monthly basis. The members have been unusually active in all phases of community life. Financial contributions to carry on this work have been adequate.

JAY E. HOULAHAN, M.D., *Councilor*

Deputy Councilors:

F. F. MCKEAN, M.D., Butler
H. G. MARINOS, M.D., Cerro Gordo
W. L. RANDALL, M.D., Franklin
T. J. IRISH, M.D., Hancock-Winnebago
I. T. SCHULTZ, M.D., Humboldt
M. G. BOURNE, M.D., Kossuth
CHARLES BERGEN, M.D., Worth
S. P. LEINBACH, M.D., Wright

THIRD DISTRICT

So far as the Third District is concerned, the past year has been pretty much a repetition of previous years, although I believe we have somewhat fewer neutrals in respect to efforts on behalf of keeping the practice of medicine free.

We are maintaining high standards of practice in addition to that burden.

Our Woman's Auxiliary maintains its outstanding organization in this District, and continues to accomplish real results in all its projects.

DEAN H. KING, M.D., *Councilor*

Deputy Councilors:

C. C. JONES, M.D., Clay
E. L. JOHNSON, M.D., Dickinson
R. L. COX, M.D., Emmet
STUART COOK, M.D., Lyon
E. B. GETTY, M.D., O'Brien
F. B. O'LEARY, M.D., Osceola
H. L. BRERETON, M.D., Palo Alto
J. M. RHODES, M.D., Pocahontas
M. O. LARSON, M.D., Sioux

FOURTH DISTRICT

The members of the Fourth District have continued the usual local meetings during the past year. The members of the Auxiliary have been particularly active in support of the principles of organized medicine and have been a great help to the membership.

My sincere thanks to the doctors of the Fourth District, and especially to the deputy councilors.

M. A. BLACKSTONE, M.D., *Councilor*

Deputy Councilors:

R. R. HANSEN, M.D., Buena Vista
J. M. TIERNEY, M.D., Carroll
H. J. FISHMAN, M.D., Cherokee
R. A. HUBER, M.D., Crawford
J. B. DRESSLER, M.D., Ida
L. A. GAUKEL, M.D., Monona
R. L. FISCH, M.D., Plymouth
J. W. GAUGER, M.D., Sac
D. B. BLUME, M.D., Woodbury

FIFTH DISTRICT

County Medical Societies of the Fifth District have continued their usual activities during the past year. There has been considerable interest in anti-King-Anderson activity, and both the county societies and the Auxiliaries, where they exist, have been working hard on this program.

The Dallas-Guthrie County Medical Society reports regular meetings, with considerably increased attendance since the meetings have been moved to the evening and are preceded by a social hour. The deputy councilor reports 80 per cent attendance.

Calhoun County has continued its excellent program of providing seven scholarship awards each year, scattered over the county. These awards are given to high school students on the basis of character, dependability, altruism and industry.

Webster County has put on an excellent afternoon and evening postgraduate medical education course during the past year, in addition to holding its medico-legal seminar once again. Both meetings were well attended.

The Boone and Story County Societies have held regular scientific meetings with guest speakers throughout the past year. Story County regrets the loss of Dr. G. E. McFarland, Sr., who was a 51-year veteran member of the Iowa Medical Society. Dr. McFarland died in October at the age of 81.

I wish to thank the deputy councilors of this district for their cooperation and assistance during the past year.

POLK COUNTY

The Polk County Medical Society became involved in several rather important community services during

the year 1961, and by reason of the alertness of the responsible committees and its Executive Council, excellent progress has been made in resolving some controversial aspects of them. The membership of the Society has evidenced greater concern and interest in all aspects of the Society's responsibilities. All eligible doctors of medicine residing or practicing within Polk and Warren Counties are members of the Society. The operating budget of the Society for the year was approximately $35,000. Three loans, each in the amount of $500, were granted to former Broadlawns interns now in residency training. The income for the year was slightly less and expenses greater because of the greater number of meetings and more extensive activities on the part of committees.

The Polk County Society's executive office experienced an ever-increasing demand for referrals, information and assistance in medical affairs, both from the public and from the profession, as well as inquiries from people and organizations within and outside of the community.

Major activities of the County Society's Public Relations Committee included a public forum co-sponsored by The Register and Tribune Company and the State Department of Health on the subject of allergy. A Future Doctors Club has been established in one of the high schools of Des Moines, and interest has been expressed in at least two other schools. A more effective liaison has been established with high school publications. Effective public speakers have represented the profession before several business and professional groups in Des Moines. These highlights, in addition to the very many day-to-day public relations activities, help fulfill one of the purposes of the Society—"to make effective the opinion of the profession. . . ."

The Polk County Society's Committee on Child Health and Welfare reports a greater percentage of kindergarten children examined prior to starting school than in any previous year. The average for the county was approximately 54 per cent, and in some schools more than 90 per cent of new pupils had the benefit of pre-school examinations and immunizations. Over 140 doctors of medicine participated in that program. With the recommendation of the Committee, and in cooperation with the Des Moines Council of Social Agencies, a clinic for evaluation of retarded children has been established under the supervision of the director of the City-County Health Department. Progress has been made in efforts to establish the position of full-time medical director of public school health, and every effort has been extended to obtain a qualified person to fill the position. Progress is being made in the correlation, by school and private physicians, of records of examinations of public school students.

The Polk County Society's Committee on Public Health has been alert to the needs of the Des Moines community, especially in regard to polio immunization. Low-cost polio clinics arranged by labor to reach a hard core of people who apparently will not accept free care and cannot or will not go to private physicians have been approved, subject to the precautions and regulations which should pertain thereto. Some additional money was obtained from the Polk County Board of Supervisors by the City-County Health Director to purchase vaccine for use in the public health clinics. Plans are now in the formative stage for utilization of oral vaccine when it becomes available. The osteopathic profession in Des Moines has been completely cooperative in adhering to the recommendations of the medical profession regarding clinic immunization. A research project is being conducted to determine the number of children protected within the first year against polio, diphtheria, pertussis and smallpox. In addition, abeyant tuberculosis control is being studied; the venereal disease clinic has become more available and thus more effective; and in general, the public health services in Des Moines have been integrated very effectively with the private practice of medicine.

The Polk County Society's Medical Coordinator of Civil Defense has consulted with the State Director of Civil Defense in formulating the first written delineation of responsibilities and instructions for conduct in case of emergency or disaster. Two simulated emergencies were staged during the year, and the Des Moines medical teams participated and benefited from those experiences.

Only 14 formal charges against physicians were filed with the Polk County Society's Mediation Committee. Inadequate communication between physicians and their patients, and resulting misunderstandings, were the causes of almost all grievances.

The Home Care-Homemaker Service, which was recommended by the Polk County Society's Committee on Aging, and given actual financial support by the Society, has now been established, in large part as a result of very active study and support by a committee of the Woman's Auxiliary.

A resolution has been adopted by the Polk County Society in opposition to the King-Anderson Bill. Its Legislative Committee and a committee of the Auxiliary are very active in other particulars in opposition to federal control of medicine, and some moneys have been expended on radio and television programs supporting medicine's position. The County Society's Legislative Committee was concerned, although no official action was taken, in a public housing controversy, and in the election of trustees for Broadlawns Hospital.

A Dean's Committee, appointed a year ago, has implemented an affiliation between Broadlawns-Polk County Hospital and the State University of Iowa, and Dr. Robert E. Carter, an associate professor of pediatrics at S.U.I., has been made director of medical education at Broadlawns. He expects to inaugurate a two-year residency training program for family physicians on July 1, 1962. This program has been approved by the Council on Medical Education and Hospitals of the AMA and by the American Academy of General Practice. Presently, a small number of senior medical students from the State University of Iowa are participating in the clinical care of patients at Broadlawns.

The County Medical Society has had excellent cooperation from the Polk County Welfare Department, which shares its concern over the handling of some local problems at the state level in ways that are not in accord with local opinion or local practices. It has successfully resisted requests for the establishment of special fee schedules for catagories of medical care.

The Polk Medical Society's controversy with the Polk County Chapter of the American Red Cross and the Polk County Labor Council, regarding the establishment of a blood bank in Des Moines has been a touchy public relations problem. However, the Society

seems to have successfully defended its position against allegations that the present program is defective, and is succeeding in the establishment of a locally controlled blood bank.

Polk County continues to commit its full quota of charity patients to the State University of Iowa for medical care in the clinics there. Also, Broadlawns Hospital provides complete psychiatric care and general medical care for many people including a goodly number from adjacent counties, though the boards of supervisors or welfare departments of those counties consistently refuse payment for hospital or medical care at Broadlawns.

The Polk County Society has presented some excellent scientific programs as well as holding its fall party and arranging some special and very important meetings on the present status of medical legislation.

G. E. McFARLAND, JR., M.D., *Councilor*

Deputy Councilors:

RALPH L. WICKS, M.D., Boone
GLENN S. ROST, M.D., Calhoun
ALLAN G. FELTER, M.D., Dallas
ELVIN D. THOMPSON, M.D., Greene
WM. A. SEIDLER, JR., M.D., Guthrie
GEORGE A. PASCHAL, M.D., Hamilton
JOHN G. THOMSEN, M.D., Polk
JOHN D. CONNER, M.D., Story
CHARLES J. BAKER, M.D., Webster

SIXTH DISTRICT

The greatest activity this year has been directed against the passage of King-Anderson legislation. Letters have been written to our respective Congressmen, and addresses have been given on a local level to service clubs and other local lay groups. The Woman's Auxiliaries in our counties have also been extremely active in this field.

All county societies have held meetings, but the most activity has been centered in the counties with larger membership, such as Black Hawk and Marshall. Iowa County reports several scientific meetings held throughout the year.

Marshall County reports increased hospital facilities, with the construction of the new addition at Mercy Hospital and the anticipated construction at Deaconess Hospital, in Marshalltown.

Allen Memorial Hospital, in Black Hawk County, is currently engaged in a $436,000 addition to its nursing school.

The Woman's Auxiliary of Black Hawk County holds an annual ball and the proceeds from it are divided among the four hospitals in the county.

The Sixth District has gained 11 new members, and has lost six members during the year. Four of the losses were sustained by doctors moving out of the District and the remaining two by death. The physicians who died were Dr. Knight E. Fee, of Tama County, and Dr. A. W. Burgess, of Hardin County, who had previously moved to Arizona.

JOHN W. FERGUSON, M.D., *Councilor*

Deputy Councilors:

N. C. KNOSP, M.D., Benton
C. D. ELLYSON, M.D., Black Hawk
A. E. REEDHOLM, M.D., Grundy
L. F. PARKER, M.D., Hardin
C. F. WATTS, M.D., Iowa
J. W. FERGUSON, M.D., Jasper
R. C. CARPENTER, M.D., Marshall
S. D. PORTER, M.D., Poweshiek
A. J. HAVLIK, M.D., Tama

SEVENTH DISTRICT

The component county societies of the Seventh District have all been active throughout the past year, conducting many varied scientific programs as an aid in keeping doctors informed and in advancing postgraduate medical education.

Social legislation in support of the Kerr-Mills approach has been advanced, and information about the economic perils of the King-Anderson-type bills has been disseminated both to the membership and to interprofessional groups and other laity.

Civic and community activities have been advanced by member doctors in aiding local groups concerned with Civil Defense and local disaster medical care. Cooperation with Red Cross and its blood bank activities, support of projects of the handicapped children, and active assistance in the programs of mental health and retarded children have been time-consuming but rewarding pursuits of many of our physicians. As in the past many years, many of us have given wholehearted support to fostering the success of such organizations as the Heart Association and the Iowa Division of the American Cancer Society, and continuing the fight against tuberculosis and diabetes. Free polio immunization for school children is another one of the several public service functions performed.

Many excellent programs for public information on television and radio have been produced, aiding the dissemination of factual information to a very receptive audience in eastern Iowa. In line with improving public relations and providing ready access to a physician for those in need, emergency call services have been established whereby a physician can be reached night or day, and working day or holiday. Money has been donated to aid the bright young scientists (many of whom we hope are to be future physicians) who participate in the Eastern Iowa Fair. This wonderful form of "recruitment" has many possibilities, and recruitment of nurses has also been our active concern. The Preceptor Program of the IMS and the State University College of Medicine continues to enjoy strong support. Whether this program really produces more general practitioners or not is a moot point. What it does effectively is to give the young student an excellent opportunity to see the active practice of medicine in a fashion that can't be accomplished at the College of Medicine. The students who have participated are practically unanimous in their praise of the program and of what they have been able to learn under the tutelage of able practitioners.

I should like to extend my warm thanks to the Deputy Councilors of the Seventh District, whose tireless efforts continue to maintain a strong and informed membership of the Iowa Medical Society.

C. E. RADCLIFFE, M.D., *Councilor*

Deputy Councilors:

P. J. LEEHEY, M.D., Independence
H. E. O'NEAL, M.D., Tipton
V. W. PETERSEN, M.D., Clinton
R. E. CLARK, M.D., Manchester
R. J. McNAMARA, M.D., Dubuque
L. B. WILLIAMS, M.D., Maquoketa
L. H. JACQUES, M.D., Iowa City
L. D. CARAWAY, M.D., Monticello
H. J. JONES, M.D., Cedar Rapids

EIGHTH DISTRICT

The members of the Eighth Councilor District have been very active in scientific as well as socio-economic projects. All societies have met regularly, some of them in conjunction with hospital staffs.

The Muscatine County Medical Society has been extremely active in stimulating all citizens in its area regarding governmental medicine and socialistic tendencies in general. Each and every member of that Society is to be commended on his activity, both personally and financially. The doctors' participation in I.P.P.L. has been extraordinary.

The Des Moines County doctors held a joint meeting with the members of the Des Moines County Bar Association during the year, and also participated in a postgraduate conference with the Iowa Academy of General Practice. The County Medical Society is still holding the line by not participating in the Vendor Payment Plan, but caring for the needy through a plan with the local County Social Welfare Board.

Scott County doctors held another dinner and meeting with all prospective medical students from the three local high schools and the local colleges. A very active program has been instituted with the allied professions to stimulate efforts to maintain the free practice of medicine. In addition to regular monthly meetings of the Society, several special meetings have been held to discuss the socio-economic problems confronting the medical profession. Five of the members attended the AMA legislative meeting in Chicago.

Since reports from other counties in the district have been wanting, no details about their activities can be presented at this time.

The cooperation of all doctors in this District is quite satisfactory, and it is hoped that it will continue in the future.

J. H. SUNDERBRUCH, M.D., *Councilor*

Deputy Councilors:

J. F. Foss, M.D., Des Moines
J. S. JACKSON, M.D., Henry
J. W. CASTELL, M.D., Jefferson
G. H. ASHLINE, M.D., Lee
G. C. MCGINNIS, M.D., Lee
E. S. GROBEN, M.D., Louisa
K. E. WILCOX, M.D., Muscatine
ERLING LARSON, M.D., Scott
KIYOSHI FUROMOTO, M.D., Van Buren
G. E. MONTGOMERY, M.D., Washington

NINTH DISTRICT

This is an abbreviated report submitted by an "abbreviated" councilor for the Ninth District. Dr. George A. Atkinson, Oskaloosa, was forced to resign because of poor health, and the interim appointment fell to my lot.

Five counties in the District hold regular scientific and business meetings, and all of these societies were visited. The other four hold meetings on call, but all have been visited at least indirectly.

The attention of this area has been directed to the continuance of quality practice in an attempt to influence the public image of the physician. Concrete efforts have likewise been made to insure political action favorable to free medicine. Wayne County has proved that a small group can help public relations of the profession by paying for advertising material favorable to the physician. This has been a successful venture.

Interest of all local societies has been directed to the paramedical groups of the area, and several meetings have been held over the District, all of which have been well received.

The ambitions and aims of the IPPL have been publicized and progress made, with more to come.

Locally sponsored and operated projects (blood bank, tumor clinics, etc.) have been continuing to receive good support, and the communities which they serve derive benefit from them.

KENNETH E. LISTER, M.D., *Councilor*

Deputy Councilors:

E. A. LARSEN, M.D., Appanoose
H. J. GILFILLAN, M.D., Davis
R. G. GILLETT, M.D., Keokuk
A. L. YOCOM, M.D., Lucas
R. L. ALBERTI, MD., Mahaska
D. H. HAKE, M.D., Marion
D. N. ORELUP, M.D., Monroe
L. J. GUGLE, M.D., Wapello
D. R. INGRAHAM, M.D., Wayne

TENTH DISTRICT

The year 1961 was, of course, a legislature meeting year, and there was much activity of the various legislative committees and committeemen throughout the region. Essentially, they functioned almost as a unit.

Almost every county society meets in conjunction with the hospital staff in its area or in an adjacent area, so that information was rather efficiently shared by all of the doctors. A major problem was solved in the Tenth District as the Warren County Medical Society transferred to the Fifth District and in fact amalgamated with Polk County Medical Society.

There were four meetings of the Future Doctors Club at which doctors and young people from Union County and surrounding areas met together.

The Union County Medical Society set up and staffed a "Freedom Booth" at the Iowa Medical Society's annual meeting last year, and plans to do so again this spring, to recruit supporters for its resolution asking IMS endorsement for the proposed twenty-fourth amendment to the U. S. Constitution. The Reference Committee on Legislation and Public Relations advised reintroducing that resolution this year, and that advice will be followed.

It would appear that we have learned how to become effective politically, and our well-oiled machine should prove useful in the days ahead.

HAROLD J. PEGGS, M.D., *Councilor*

Deputy Councilors:

A. J. GANTZ, M.D., Adair
J. C. NOLAN, M.D., Adams
G. B. BRISTOW, MD., Clarke
E. E. GAMET, M.D., Decatur
J. E. EVANS, M.D., Madison
Ringgold
R. W. BOULDEN, M.D., Taylor
H. J. PEGGS, M.D., Union
C. A. TRUEBLOOD, M.D., Warren

ELEVENTH DISTRICT

The activities of the Eleventh District were similar to those of the previous year, each county holding regular monthly meetings with one or two exceptions. In many instances the county society meetings have been held in conjunction with hospital staff sessions.

The Woman's Auxiliaries have been active in five

of the counties, and have been helpful in promoting medical education. Their work has been a tribute to the medical profession as well as the Auxiliary.

The Page County Medical Society held its annual half-day seminar this year on cardiovascular disease and surgery.

Many of the men of the District have done considerable lecturing on communism, socialism and the dangers of extending Social Security benefits to include medical care for the aged.

L. V. LARSEN, M.D., *Councilor*

Deputy Councilors:
H. K. MERSELIS, M.D., Audubon
E. M. JUEL, M.D., Cass
K. D. RODABAUGH, M.D., Fremont
A. C. BERGSTROM, M.D., Harrison
M. L. SCHEFFEL, M.D., Mills
H. C. BASTRON, M.D., Montgomery
K. J. GEE, M.D., Page
G. H. PESTER, M.D., Pottawattamie Shelby

Reports of Standing Committees

COMMITTEE ON LEGISLATION

This report, written more than two months before the 1962 Annual Meeting, will be incomplete because of the current crisis on King-Anderson type legislation. This report, however, will serve briefly to review matters of legislation, both state and national. A supplemental report will be submitted at the Annual Meeting.

NATIONAL LEGISLATION

King-Anderson Bill: This highly political proposal still remains in the House Ways and Means Committee. Hearings on H.R.4222 were conducted before the House Ways and Means Committee from July 24 through August 4, 1961. Supporters of the disputed Administration plan to tie medical care financing for the aged to Social Security have threatened to attach it in the Senate as an amendment to some other House-passed bill. They have also raised the possibility of trying to secure a House vote by means of a discharge petition. Neither effort has been made thus far.

The Iowa Medical Society's activities in opposition to H.R.4222 have been reported to the membership through periodic bulletins and articles published in the JOURNAL OF THE IOWA MEDICAL SOCIETY. The Committee on Legislation will continue to observe the status of this proposed legislation closely.

Medicine is faced with an extremely difficult legislative battle. The Committee on Legislation urges each and every physician to be resolutely optimistic, for by an all-out effort on everyone's part, the fight can and will be won. Such an effort requires not only the official support of the State Society, but individual support as well.

Other National Legislation: The Committee on Legislation is kept up-to-date on the status of all national legislation of medical interest through numerous bulletins and publications of the AMA, in addition to the Society's contact with members of the Iowa Congressional delegation in Washington. Of the many bills now before the Second Session of the 87th Congress, one of special interest to the medical profession is H.R.10, commonly referred to as the Keogh Bill. This measure to encourage retirement savings by the self-employed through tax incentives similar to those offered salaried persons, is a pending order of business before the Senate. The Bill, in slightly differing versions, already has passed the House Ways and Means Committee and the Senate Finance Committee. The timetable on the vote is up to the Senate leadership. The AMA and the IMS, as well as many other groups representing self-employed persons, have supported and are supporting this proposal.

Annual Washington Conference: Representatives from the Iowa Medical Society are scheduled to hold their annual meeting with members of the Iowa delegation in Congress, in Washington, D. C., on April 9, 1962. A report on that meeting will be included in the Committee's supplemental report.

STATE LEGISLATION

As is well known, through LEGISLATIVE BULLETINS, NEWS BULLETINS and JOURNAL articles, the 59th Iowa General Assembly enacted a highly acceptable medical aid to the aged law. Unfortunately, efforts to obtain an appropriation were unsuccessful. It is felt that there are good prospects for an appropriation, at the next General Assembly in 1963, to implement the desirable legislation already enacted.

Several other important legislative proposals were supported and watched very closely by the Committee on Legislation. These included the hotly-debated Animals for Research Bill and many other bills of significance. Again these have been detailed in numerous publications of the Society and need not be itemized in this report.

The Committee on Legislation is now evaluating proposals for legislation which have been considered by Iowa Medical Society committees. Any item which requires action by the House of Delegates or has been referred to the Committee for consideration and recommendation will be included in a supplemental report.

The Committee once again wishes to express its appreciation to the county legislative contact men, who continue to perform a most valuable and indeed indispensable function. Each county legislative contact man has responded immediately when called upon for assistance. This line of communication has been utilized time and again to aid the Committee in carrying out the duties with which it has been charged.

HOMER E. WICHERN, M.D., *Chairman*

NECROLOGY COMMITTEE

The following members of the Iowa Medical Society died during the year 1961:

	Age
Max A. Armstrong, Pueblo, Colorado	77
Frank N. Bay, Albia	69
Ransom D. Bernard, Ames	79
Walter L. Bierring, Des Moines	93
Francis P. Cauley, Anthon	78
Hal A. Childs, Creston	82
Orson W. Clark, Ogden	88
Robert A. Culbertson, Des Moines	60
Knight E. Fee, Toledo	80
William H. Gibbon, Sioux City	62
Benjamin F. Gillmor, Red Oak	86
Dean W. Harman, Glenwood	71
Arlan F. Harrington, Cedar Rapids	51

John T. Hecker, Cedar Rapids	54
Felix A. Hennessy, Calmar	78
James W. Hill, Mount Ayr	79
Walter P. Hombach, Council Bluffs	69
Phillip V. Janse, Algona	81
Charles L. Jones, Gilmore City	79
W. Hawley Kerr, Hamburg	56
Henry G. Langworthy, Dubuque	81
Gilbert T. McDowall, Gladbrook	86
Guy E. McFarland, Ames	81
Robert C. McGeehon, Indianola	39
Morgan I. Nederhiser, Cascade	64
Orville J. Pennington, Dexter	85
Lester D. Powell, Des Moines	70
George W. Rimel, Bedford	70
Frederick H. Rodemeyer, Sheffield	85
Lester A. Royal, West Liberty	77
Charles D. Shelton, Bloomfield	85
Oral L. Thorburn, Ames	64
Tom B. Throckmorton, Des Moines	76
William H. Van Tiger, Eldora	76
Ralph L. Weaver, Cumberland	62
Howard A. Weis, Davenport	66
Walter E. West, Centerville	81
Ruth F. Wolcott, Spirit Lake	63

MEDICO-LEGAL COMMITTEE

Two years ago, this Committee was instructed to study and give an opinion on the Marion County Resolution concerning "vexatious litigation." Since then intense study has been made and it is the unanimous opinion of the Medico-Legal Committee that the proposed legislation has good merit and should be sincerely backed by the Iowa Medical Society.

This Committee was consulted twice during the past year on threatened malpractice suits. Advice and aid were given in each case.

The Professional Liability Policy of the Physicians and Surgeons Underwriters Corporation of Minneapolis was reviewed by the Committee. It was felt it is not within the scope of this Committee to recommend any particular malpractice insurance.

VAN C. ROBINSON, M.D., *Chairman*

COMMITTEE ON ARTICLES OF INCORPORATION AND BY-LAWS

At the IMS Annual Meeting in 1961, the House of Delegates approved a recommendation of the Reference Committee on Insurance and Medical Service as follows: "That the Committee on Articles of Incorporation and By-Laws be instructed to develop such amendments as will permit the House of Delegates, instead of the Executive Council, to elect delegates-at-large to represent the Blue Shield Board in the House of Delegates and on the Executive Council."

In accordance with this directive, the Committee will have the necessary amendments prepared for presentation to the House of Delegates when it meets in May.

PAUL F. CHESNUT, M.D., *Chairman*

COMMITTEE ON MEDICAL SERVICE

This "parent group" for the medical service subcommittees had no occasion to meet during the past year. The most active of the subcommittees, as usual, has been the one concerned with medical services to the indigent.

Dr. Sternhill's excellent report on the work of his Subcommittee during the past year appears elsewhere in this HANDBOOK.

The Subcommittee on Prepayment Medical Care was represented at the National Congress on Prepaid Health Insurance, October 14-15, 1961, where the discussion dealt with all phases of prepayment plans by Blue Shield, commercial insurance, unions, etc. This Subcommittee has continued to maintain liaison with Blue Shield, and also with commercial insurance companies through the medium of the Health Insurance Council.

The IMS continues to serve as fiscal agent for the Department of Defense as regards Medicare, and has paid out $222,727.06 to Iowa physicians through that program during the past year. Between now and the time of the Annual Meeting, the IMS will have to determine whether or not it desires to renew the existing Medicare contract with the Department of Defense for an additional year.

The new and expanded HANDBOOK OF RESOURCES AVAILABLE TO PHYSICIANS is soon to be published.

Seven meetings for doctors' office assistants have been held, as of February 15, 1962, sponsored by the respective county medical societies, the IMS, Blue Shield and Blue Cross. Through this medium, legislative and public relations questions have been presented to a total of 415 medical assistants. In all of these meetings, the role of the county medical society has been emphasized. These meetings have been most successful and will continue.

Prior to the Annual Meeting, an additional five meetings are scheduled, with an estimated attendance of 280.

GEORGE G. YOUNG, M.D., *Chairman*

SUBCOMMITTEE ON MEDICAL SERVICE TO THE INDIGENT

Your Subcommittee started the fiscal year 1961 with a mandate given it by the House of Delegates at its April, 1961, meeting. The following directives were given to this Subcommittee:

1. Recommend to the State Board of Social Welfare that a fiscal agent other than the State Department of Social Welfare be approved. The principal motive for this change would be that an agency of our own selection might be more acceptable to most physicians doing business with the vendor program. Also, if a third party needs to be incorporated, an agency other than the State Department of Social Welfare would be more palatable to doctors.

2. Renegotiate the current unit fee schedule for services rendered by physicians. Our members have often expressed a desire for a more realistic appraisal of a fee consistent with current costs of operation.

3. Renegotiation of fees paid for x-ray and pathology performed in the office of the physician.

4. Reappraisal of fees paid to dispensing physicians for drugs.

Accordingly, at the two meetings held with the State Board of Social Welfare, these items were submitted for perusal by the Board. As a practical consideration, it was recommended by the IMS Subcommittee on Medical Services to the Indigent that sub-

committees representative of the State Department of Social Welfare and the Iowa Medical Society be appointed for the purpose of discussing the items in question. The State Board of Social Welfare agreed only to review that request. On December 20, 1961, the chairman of the State Board of Social Welfare advised our Subcommittee of its approval of our recommendation to appoint a subcommittee of the Department to meet with a like group from the Medical Society to study proposed changes in the fee schedule. The president of our Society promptly appointed a committee with Dr. L. J. O'Brien as chairman, to represent the Medical Society.

The results of the deliberations of these committees will be forthcoming and may be available before the meeting of the House of Delegates.

On January 3, 1962, the chairman of the State Board of Social Welfare told this Subcommittee that the Board did not approve making any plans to discuss the appointment of a fiscal agent. That was a reiteration of a policy that had been expressed by the State Board of Social Welfare the previous year.

On January 11, 1962, the Board of Social Welfare wrote to our Subcommittee on the subject of fees to dispensing physicians. Previous to that time our Society had submitted a study by a professional management firm on the subject of fees paid to dispensing physicians for drugs. The reply of the Board of Social Welfare was as follows:

"No revision in the basis of payment for drugs dispensed by physicians can be made at this time because of insufficient funds, and prior to any future revision in the basis of payment, additional information and a more comprehensive analysis of the method used in arriving at the findings presented by professional management would be necessary."

In the matter of fees to radiologists and pathologists for services rendered in their offices, the Board requested that a survey be made of costs as they relate to fees, and that such a study be submitted for analysis by the Board of Social Welfare. To this date, such a study has not been completed.

In conclusion, the following stand out as positive achievements by this Subcommittee in the operation of the Vendor Payment Program:

1. There appears to be more physician acceptance of this program, even though reluctant. In this connection it might again be emphasized that the degree of acceptance is in direct proportion to the active functioning of the local remedial and auditing committee.

2. The State Board of Social Welfare has acceded to the Subcommittee's request to renegotiate the unit fee schedule as it relates to fees paid to physicians generally and to fees paid for x-ray and pathology when those services are performed in the office of the physician.

Less encouraging is the arbitrary position that the Board has taken in the matter of a fiscal agent. It will remain for future conferences to resolve this difference and such others as will undoubtedly present themselves.

The Subcommittee acknowledges with deep gratitude the able assistance of the president of our Society and the members of the administrative staff and legal counsel. The chairman acknowledges with thanks the cooperation of the fine members of the Subcommittee.

I. STERNHILL, M.D., *Chairman*

SUBCOMMITTEE ON PREPAYMENT MEDICAL CARE

During the past year the Subcommittee on Prepayment Medical Care has been active in two problem areas: 1. Abuses 2. Utilization.

1. In January of this year, the President of Iowa Medical Service, Dr. Earl Lowry, wrote to the Iowa Medical Society regarding the problem of studying and controlling alleged abuses. On July 12, 1961, the Committee met to obtain detailed examples of alleged abuses in doctors' claims presented to Blue Shield. The recommendations of the Committee were presented to the Executive Council and that body approved, with minor modifications, the establishing of the recommended mechanism for considering such abuses. The final decision by the Executive Council was that alleged Blue Shield abuses be referred to the Iowa Medical Society for adjudication. To date there have been no cases referred.

2. The Board of Trustees of the Medical Society received a request from representatives of the Blue Cross Board to study the area of hospital costs, medical costs and utilization of these services. This problem was referred to the Subcommittee on Prepayment Medical Care for its consideration, and after considering all aspects the Subcommittee formulated the following recommendation for presentation to the Board of Trustees: "The Subcommittee feels no intelligent evaluation of the problem is possible until the presence and degree of the problem is ascertained. The Subcommittee recommends that the IMS and IHA combine in a joint venture to study hospital costs, medical costs and utilization. While various approaches are available, the Subcommittee feels that a study of this problem can best be carried out by evaluating actual practices in representative hospitals as selected by the two organizations. Perhaps cases chosen by random sampling from the records of these representative hospitals can be studied by an IHA auditor, for the hospital portion of the charges, and a medical evaluation of the identical cases can be carried out either by a physician paid for his services or through a panel of physicians selected by IMS. The Subcommittee feels that if a panel is chosen, not less than two doctors from an unassociated community or area should jointly carry out the medical portion of the study. The combined facts of this study should be reported without identification to the Board of Trustees of the IMS and the Board of Trustees of IHA for their recommendations."

The Board of Trustees approved this proposal, and authorized a meeting between representatives of the IHA and the IMS to explore it further. Committees have been appointed by both groups, and any recommendations arising from this joint meeting will be reported to the House of Delegates.

GEORGE G. YOUNG, M.D., *Chairman*

SUBCOMMITTEE ON VETERANS' AFFAIRS

There has been no meeting of the Committee on Medical Service, and no communications have been received relative to the concerns of this Subcommittee.

R. C. GUTCH, M.D., *Chairman*

COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

The Committee on Medical Education and Hospitals cooperated with the Webster County Medical Society in sponsoring two postgraduate medical education programs in Fort Dodge during the past year. The first was held on May 25, and the second on November 9, 1961. Plans are now being made to sponsor another program on April 19, 1962. The meetings begin in the afternoon, and conclude with a dinner and evening presentation.

The Committee is anxious to cooperate with any county medical society in sponsoring a postgraduate program, and contact should be made with the Committee chairman regarding program arrangements.

The Committee and its Subcommittee on Medical Careers have encouraged the establishment of Future Doctors Clubs at the local level. An article titled "Health Careers Recruitment" was published in the "In the Public Interest" section of the August, 1961, JOURNAL. The Subcommittee will be happy to assist any physician or county medical society interested in organizing or fostering a Future Doctors Club.

The Iowa Medical Society, as a member of the Iowa Interprofessional Association, also cooperated with that organization in the development and distribution of a "Health Careers Kit," which included informational pamphlets on careers in medicine, dentistry, nursing, pharmacy, veterinary medicine and hospital administration. The kits were mailed to all school superintendents in Iowa, and additional copies were made available to school principals and vocational guidance instructors, on request.

The Committee has been told that Smith, Kline & French Laboratories has produced two films for showing to professional and lay audiences. The first is a 22-minute color film titled "External Cardiac Massage" which is available for professional training, and the second, "Life in Your Hands," is a 12-minute film designed for use in carefully controlled training classes for the key rescue personnel of the community, under the guidance of physicians. Several Iowa doctors have scheduled showings of the film, and if others are interested in utilizing it, they are asked to address their requests to the IMS headquarters office.

R. N. LARIMER, M.D., *Chairman*

GRIEVANCE COMMITTEE

The Grievance Committee does not have a report to present at this time, but will provide an accounting of its activities to the House of Delegates in May.

W. M. KRIGSTEN, M.D., *Chairman*

COMMITTEE ON PUBLIC HEALTH

At a meeting of the IMS Public Health Committee on February 15, 1962, the responsibilities and duties of the Committee were reviewed. The Committee favored the idea that there eventually should be an IMS coordinator for health education to work with all health agencies and to act as a liaison between the various agencies and the State Department of Health. One of the projects of the Committee has been an attempt to promote physician education in community health service, and the ways and means of accomplishing this have been dependent upon the procuring of a coordinator.

The plans of the Rehabilitation Committee were enthusiastically received.

The Chickasaw County Resolution (No. 14 on p. 478 of the July, 1961, JOURNAL) was considered. It asked either that steps be taken to improve relations between the State Department of Health and county health physicians, or that the office of county health physician be abolished. The Committee formulated a three-point recommendation suggesting steps to be taken to strengthen the position of the local health officer, proposing an inquiry into the problems that he faces and inviting suggestions for correcting some of the existing weaknesses in his position.

The Committee approved the research project undertaken by the American Academy of Allergy in regard to collecting records of the history and treatment of allergic reactors to insect stings, on a volunteer basis.

The operations of the Medic-Alert Foundation were approved by the Committee.

E. A. LARSEN, M.D., *Chairman*

SUBCOMMITTEE ON CHRONIC ILLNESS

There has been no meeting of the Subcommittee on Chronic Illness during the year. No matters have been referred to it.

HAROLD W. MORGAN, M.D., *Chairman*

SUBCOMMITTEE ON REHABILITATION

The Subcommittee on Rehabilitation met twice during the year—informally, at Iowa City, and in regular session at the IMS offices in Des Moines—to discuss and consider a "Proposal for Rehabilitation at the University of Iowa." The proposal was approved by the Subcommittee members who agreed that it should be submitted to the Executive Council with a recommendation for its endorsement.

The Subcommittee chairman, appearing before the Council on January 17, 1962, presented the proposal, explained various facets and answered questions. It was the Council's decision that the proposal should be endorsed by the IMS.

CARROLL B. LARSON, M.D., *Chairman*

SUBCOMMITTEE ON MATERNAL AND CHILD HEALTH

The Subcommittee met on July 12, 1961. At this meeting a health examination form for mentally handicapped children, devised by the State Department of Public Instruction with the assistance of the S.U.I. Department of Pediatrics, was presented for the consideration and approval of the Iowa Medical Society. It was pointed out that the primary objective of the State Department is to see that all mentally retarded children have a complete physical examination prior to enrollment in special classes in either private or public schools.

The Subcommittee members unanimously approved the form as submitted and forwarded their recommendation to the Executive Council for its consideration. On July 19, 1961, the Executive Council approved the health examination form.

JACK SPEVAK, M.D., *Chairman*

SUBCOMMITTEE ON EXFOLIATIVE CYTOLOGY

During the past year, no problems have arisen to require a meeting of the Subcommittee on Exfoliative Cytology.

K. R. CROSS, M.D., *Chairman*

blood pressure approaches normal more readily, more safely....simply with Salutensin®

(hydroflumethiazide, reserpine, protoveratrine A—antihypertensive formulation)

Early, efficient reduction of blood pressure. Only Salutensin combines the advantages of protoveratrine A ("the most physiologic, hemodynamic reversal of hypertension"[1]) with the basic benefits of thiazide-rauwolfia therapy. The potentiating/additive effects of these agents[2-8] provide increased antihypertensive control at dosage levels which reduce the incidence and severity of unwanted effects.

Salutensin combines Saluron® (hydroflumethiazide), a more effective 'dry weight' diuretic which produces up to 60% greater excretion of sodium than does chlorothiazide[9]; reserpine, to block excessive pressor responses and relieve anxiety; and protoveratrine A, which relieves arteriolar constriction and reduces peripheral resistance through its action on the blood pressure reflex receptors in the carotid sinus.

Added advantages for long-term or difficult patients. Salutensin will reduce blood pressure (both systolic and diastolic) to normal or near-normal levels, and maintain it there, in the great majority of cases. Patients on thiazide/rauwolfia therapy often experience further improvement when transferred to Salutensin. Further, therapy with Salutensin is both economical and convenient.

Each Salutensin tablet contains: 50 mg. Saluron® (hydroflumethiazide), 0.125 mg. reserpine, and 0.2 mg. protoveratrine A. See Official Package Circular for complete information on dosage, side effects and precautions.

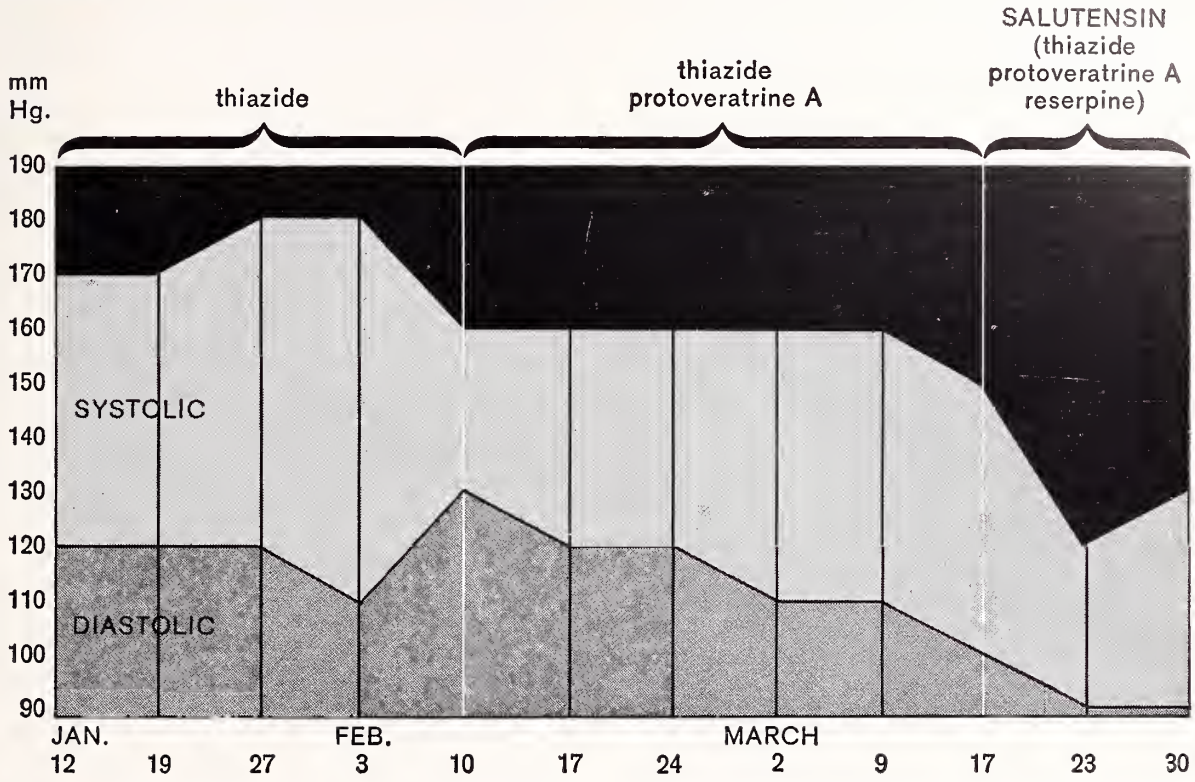
Supplied: Bottles of 60 scored tablets.

References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

all the antihypertensive benefits of thiazide-rauwolfia therapy plus the specific, physiologic vasodilation of protoveratrine A

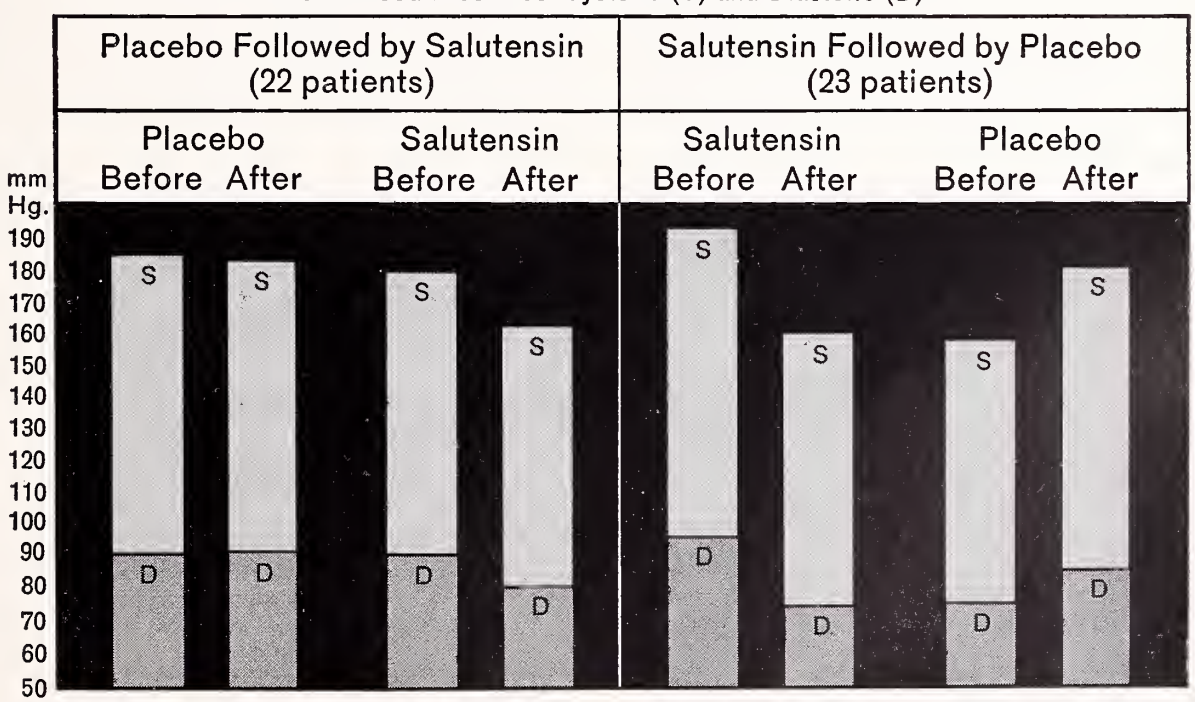
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

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COMMITTEE ON PUBLIC RELATIONS

The Public Relations Committee has been engaged in many activities designed to strengthen relations with the public and press. Following is a summary of projects and activities which have been conducted by, or on recommendation of, the Committee:

1. Preceding the North Central Conference in Minneapolis, November 4-5, 1961, the Public Relations Committee met and, based on past IMS actions and policy, recommended that a paper on "The Image of American Medicine" be presented at the Conference, stressing the necessity of a two-pronged attack to improve the image of American medicine, i.e., that individual physicians should strengthen their relations with patients and the public at the grass roots level, and an all-out educational campaign should be developed and implemented at the national level. Dr. G. H. Scanlon, the IMS president-elect, addressed the Conference on that subject. The IMS also introduced a resolution at the AMA Clinical Session in December, recommending the immediate implementation of a national public information campaign to be financed by voluntary contributions from American physicians. The resolution was referred to the Committee on Communications, a special committee of the AMA House of Delegates, for study. On February 3, officers of the IMS met with members of the Communications Committee to review the history and intent of the Iowa resolution. Specific details on this meeting will be provided in the report from the Board of Trustees.

2. An article reporting on the series of newspaper advertisements titled "In the Public Interest" and initiated in Wayne County newspapers as a pilot project under sponsorship of the Wayne County Medical Society, appeared in the November issue of the AMA publication P/R DOCTOR. Subsequently, several state medical societies requested copies of the ads, and information regarding their development. Dr. C. N. Hyatt, of Corydon, also reported on the project at the AMA Institute in Chicago, August 30-September 1. Several county medical societies have shown an interest in implementing the series locally, and last winter the Sac County Medical Society sponsored a series of eight articles in all newspapers in Sac County. In addition to the IMS project, the AMA recently developed a series of newspaper ads, and the IMS Public Relations Committee encourages the use of them. Copies of the ads have been mailed directly to all county medical society secretaries and executive secretaries.

3. In September, the IMS was invited by the Iowa Electric Light and Power Company and WMT-TV in Cedar Rapids to develop a series of 12 five-minute interviews on Society projects and activities for presentation over WMT-TV. The IELP is sponsoring a series of 12 films on medical subjects, and is donating its "commercial" time to the Society. The programs are presented once a month and, to date, IMS representatives have reported on the advantages of the private system of medical care, on medical quackery, on civil defense and disaster planning, on medical progress and on medical education. The series will be completed in September, 1962.

4. On September 1, a card announcing a change in our organization's name from Iowa State Medical Society to Iowa Medical Society was mailed to all Iowa newspapers, radio and television stations, state officials, Congressmen, professional and trade associations, business, professional and educational leaders, and other state and national medical organizations. A covering letter outlining the purposes and objectives of the Medical Society was enclosed and, in some instances, a copy of the 1960-61 Annual Report was also provided.

5. A copy of an AMA P/R Manual has been distributed by IMS field secretaries to county medical society P/R chairmen. The manual includes suggestions for developing and implementing several projects, including two that were initiated in Iowa.

6. The Fourth Hawkeye Science Fair for junior and senior high school students will be held at the Veterans Memorial Auditorium in Des Moines, April 6-7, 1962. The Fair is sponsored by the IMS, the Des Moines REGISTER & TRIBUNE, and Drake University. It continues to grow each year, and over 300 exhibits are expected.

7. The Annual Senior Day Program, arranged by the P/R Committee for senior medical students and their wives, was presented on May 13, 1961, in Iowa City. Plans for the 1962 conference are currently being developed.

8. In June, the Committee cooperated with the National Advertising Council in a campaign to promote polio inoculations. Letters were mailed to every newspaper editor in Iowa to encourage the use of free ad mats available from the Advertising Council.

9. Reprints of the "In the Public Interest" section of the IMS JOURNAL (green sheet) are mailed regularly to Iowa news outlets and to the legislators. The articles report the IMS position on legislative proposals, and review various public service projects of the Society.

10. Various pamphlets have been made available on request to Iowa physicians for distribution to patients, e.g., "The Cost of Medical Care," "Personal Health Information Card," "What Everyone Should Know About Doctors," and "To All My Patients." A limited supply of some of these materials is still available.

11. The P/R Committee has worked closely with the King-Anderson Planning Committee in distributing thousands of informational kits, pamphlets, posters, speech kits and ad mats for use by both physicians and lay organizations.

12. Liaison is continually maintained with Iowa news outlets. Appropriate news releases were prepared and distributed during the year, and wide coverage was received on last year's Annual Meeting in newspapers and on radio and television.

Your Committee chairman attended a National Conference on Medical Quackery in October, and provided information on this subject for use in the IMS JOURNAL's "In the Public Interest" section.

At the request of the Public Relations Committee, IMS field secretaries continue to visit with county medical society officers and public relations chairmen regarding projects that can be carried out at the local level, e.g., public health forums, television programs, newspaper ads, speakers' bureaus and distribution of pertinent literature to patients. The Committee encourages participation in as many public service projects as possible, and will cooperate with county medical societies in their development and implementation.

JOHN G. THOMSEN, M.D., *Chairman*

COMMITTEE ON INTERPROFESSIONAL ACTIVITIES

The Committee on Interprofessional Activities has cooperated with the Iowa Interprofessional Association during the past year in helping to carry out various programs. The members of the IIA include the Iowa Dental Association, the Iowa Hospital Association, the Iowa Nurses' Association, the Iowa Veterinary Medical Association and the Iowa Medical Society. Dr. Fred Sternagel is a member of the IIA Executive Council, and Mr. Donald L. Taylor continues to hold the post of secretary-treasurer, an office that he has held for many years.

At the request of the IIA Executive Council for an opinion as to whether or not other professional health organizations should be invited to join the IIA, the Committee recommended that since the Association's interests are scientific, as well as legislative, membership should be based on scientific equivalence. However, in order to create an opportunity for the representatives of the member groups to become better acquainted with individual representatives of the other health groups, and to ascertain, to the extent possible, their legislative and socio-economic interests and motivations, the Committee suggested that the IIA sponsor an annual meeting of all the health groups licensed under Title VIII of the Code of Iowa, as well as other organized paramedical groups. The Committee's recommendations were approved by the IMS Executive Council, and were transmitted to the IIA, which tabled consideration of enlarging its membership.

In September, each member of the IMS received a report on IIA activities. One of the interprofessional organization's major projects was to encourage the formation of comparable inter-society groups at the county level. To date, formal organizations have been established in Montgomery, Lee and Scott Counties, and interest has been manifested in forming local associations in several other counties.

Health Careers Kits, developed by the IIA, were distributed to over 650 school superintendents in Iowa, and additional copies were provided on request to school principals and vocational guidance counselors. The kits include informational materials on careers in medicine, dentistry, veterinary medicine, pharmacy, nursing and hospital administration. An exhibit on health careers was displayed at the Iowa State Education Association Convention in October, and representatives of the member associations were in attendance at the booth.

Members of the IIA Speakers Bureau, including several physicians, have participated in several meetings of the member organizations.

A list of the members of the IIA County Civil Defense and Disaster Planning Committees has been provided to the Governor's Advisory Committee on Medical Self-Help, and to the new Director of Civil Defense for the State of Iowa. These committees work with county civil defense directors, and will assist in implementing the Medical Self-Help Training Program at the local level.

FLOYD M. BURGESON, M.D., *Chairman*

COMMITTEE ON HEALTH EDUCATION

The Committee on Health Education continues to inform the public on matters of health from every possible angle.

"Medical Diary" films on various health topics, produced by the IMS, are still available for re-run showings over Iowa television stations, and have also been lent to many lay organizations throughout the state. Last year, a series of 13 "Medical Diary" films, which had been sold to the AMA, were utilized by the Florida Medical Association over several stations in that state. Films from the AMA library are also made available to professional and lay groups in Iowa, and over 20 films were secured during the past year for such showings.

The Committee encourages county medical societies to cooperate with local television stations in the production of medical programs, and will be happy to assist in the development of a program series.

The health column "Iowa M.D.'s Say" published in WALLACE'S FARMER has continued for nearly a decade, and goes on providing appealing and timely articles on a wide number of health subjects.

Through the services of the IMS Speakers Bureau, a taped recording of a speech by Dr. Daniel Stone, of Iowa City, on socialized medicine in England was provided to many county medical societies and their Auxiliaries. Throughout the year, members of the Committee worked at the county level whenever needed as liaisons with legislative contact men. The Speakers Bureau secured speakers for 10 county medical society meetings and for 12 lay meetings during the past year. County medical society officers have been provided a list of suggestions for establishing speakers bureaus, and reports indicate that several have been formed at the local level.

A series of radio programs titled "Medical Milestones," produced by the AMA, was promoted by the IMS, and broadcast over several radio stations in Iowa.

The IMS cooperated with the State Department of Health and other agencies in the development of the 13th Annual Health Education Workshop, June 20-21, in Ames. The workshops are conducted for health chairmen and personnel from various lay and health organizations in the state. The theme of the program was "The Art of Communications in Developing Community Health Projects." The Society was responsible for inviting the director of the AMA Communications Division to serve as the keynote speaker. The chairman of the Committee presided at the first day's session, and the executive director of the IMS participated in a panel discussion concerning methods of communication within an organization. Several physicians and some members of the Woman's Auxiliary were in attendance. The Committee encourages Woman's Auxiliary members to attend these conferences as representatives of the medical profession.

At Clear Lake, on July 18, the Committee was represented at a meeting of an Interagency Cooperation Meeting on School Health, sponsored by the State Department of Health. The meeting dealt primarily with ways and means of coordinating the educational materials available through professional and voluntary health agencies. It was suggested at this meeting that the group develop a book list of supplemental reading on health, for use by school teachers and their students. At an interagency meeting in Des Moines, November 28, it was reported that progress is being made on this project, and the final list is to be approved by representatives of the member organizations prior to formal distribution.

For the third year, the Committee secured a consultant from the AMA for a Teachers' Workshop in School Health Education, which was held at Drake University, Des Moines, July 24-August 4. The Committee has also secured a workshop consultant from the AMA for the 1962 course, which is scheduled for July 23-August 3, at Drake University.

The Committee feels that the medical profession must continue to offer guidance and cooperation to various volunteer health agencies and health departments, in order to minimize duplication in various projects and programs. This is especially important now, when any slight mistake or waste in our present system can be used as an excuse to force government-controlled medicine and health programs upon the American people.

CRAIG D. ELLYSON, M.D., *Chairman*

Reports of Special Committees

COMMITTEE ON INDUSTRIAL HEALTH

The Committee on Industrial Health has not held a meeting during the past year. Several reports of particular interest have been distributed to the Committee members for their information and study. Two of them, prepared by the chairman, concerned meetings of state industrial health committee chairmen with the AMA Council on Occupational Health, the first of which was held on May 20, in St. Louis, and the second of which took place on October 2, in Denver.

However, no problems have been presented that would necessitate a meeting of the Committee.

C. H. JOHNSTON, M.D., *Chairman*

COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health has had only one formal meeting during the past year, but despite that fact, individual members have been active in their effort to promote better mental health throughout the entire state, and have concentrated much energy in the area of the public mental health program, as directed by the Board of Control of State Institutions.

In June, 1961, the Budget and Financial Control Committee of the Legislature very effectively slowed up the gratifying progress that was being made. Individual Committee members spent much time talking with and writing to political leaders and individual members of the Interim Committee of the Legislature, in an effort to have the ceiling on physicians' salaries rescinded. Other members of the Society, including Dr. Glesne, the president, were also active in this regard. Their effort was successful, but final action on the question "Does Iowa desire an adequate treatment program for its mentally ill?" still must be settled by the voters next fall. It is anticipated that this question will be of vital political significance.

In February of this year, the chairman attended the American Medical Association annual meeting for mental health representatives from the various states.

No additional items came to the attention of the Committee.

PAUL M. KERSTEN, M.D., *Chairman*

COMMITTEE ON RURAL HEALTH

The IMS Committee on Rural Health has met twice since the 1961 Annual Meeting. The first time, on October 11, 1961, was at and after a planning session of the AMA Rural Health Council and representatives from several midwestern states, at which plans were laid for the Regional Rural Health Conference that is to be held at the Hotel Savery, in Des Moines, on May 18 and 19, 1962. The members of the IMS Committee attended that gathering not only to take part in outlining the program for the Conference but also to indicate the interest that Iowa doctors have in it.

All Iowa physicians may expect to receive copies of the program for the AMA Regional Rural Health Conference, and despite the fact that it is to be held only a few days after the close of the IMS annual meeting, it is hoped that a large number of them will arrange to attend it. All of us want farm people, and the staffs of the organizations that serve them, to feel that doctors are really concerned about rural health problems. Remember the dates and the place: May 18 and 19 at Hotel Savery, Des Moines. If you can, be sure to bring your legislators with you.

In their brief discussion following the planning session, the IMS Committee members decided that the assistance offered, at the state and local levels, by the newly formed rural health committees of the Woman's Auxiliary probably could best be utilized in activities conducted by the Cooperative Extension Service in Agriculture and Home Economics.

Therefore, on January 23, 1962, the IMS Committee met with some of the executives of the Agricultural Extension Service, in Ames, and worked out the following proposals:

1. Cooperation should be secured between county agents and county medical societies. It was suggested, for example, that each county medical society should be encouraged to invite its county extension director to one of its meetings for an informal exchange of ideas on local needs as regards rural health.

2. One project on which each county agent and county medical society can begin working together is the promotion of tetanus immunizations.

3. The Medical Self-Help Training Program is something else that county agents and county medical societies can join in promoting.

4. Doctors can help the Extension Division, both at the state level and locally, with its 4-H Club program (Head, Heart, Hand, and Health). Currently, the Ames staff feels, "Health" is the weakest of the H's.

5. The Ag Extension can try to interest its county organizations in helping to promote the idea of a family doctor for every farm family.

6. The IMS is to gather or formulate materials with which leaders of farm youth organizations can teach good bodily posture. The Medical Society staff, with the advice of the faculty in orthopedic surgery at S.U.I., intends to have a film made for this purpose, and perhaps to make available others of the moving pictures that have been designed for use as aids in teaching the subject to youngsters of various ages.

7. The Ag Extension representatives said that rural youngsters need reassurance about the possible variations within the normal range in the various aspects of physical development. They mentioned some studies by a Dr. Bancroft, of Lincoln, on that subject that are being used by the 4-H Clubs in Nebraska, and asked for IMS help in getting them for use in Iowa.

8. The Ag Extension asked for health-careers-recruitment materials for distribution to rural young people.

Since that meeting in Ames, the IMS staff members have made some progress in the implementation of

those proposals. Information has been provided to the Ag Extension Division regarding the necessity for everyone's maintaining his immunity to tetanus, and the Ag Extension is transmitting that information to its local organizations. Samples of various health-careers-recruitment materials have been sent to Ames, together with an offer from the IMS to supply them to local youth organizations in whatever quantities are required.

Cooperation at the local level between county medical societies and county agents is something that the Woman's Auxiliary and both the rural health committees and local medical society officers will want to help promote. Doubtless the IMS Rural Health Committee can consult with the Ag Extension at the state level regarding the health-education aspects of the numerous short courses that are conducted each summer at a camp near Ames for representatives of 4-H Clubs from throughout the state.

The IMS Rural Health Committee feels that with the help of the Ag Extension Division it has formulated a positive and highly worthwhile set of projects on which physicians and farm leaders can work together. Of course the success of these endeavors will depend upon the Committee's securing the cooperation of doctors and doctors' wives in all parts of Iowa.

J. W. GAUGER, M.D., *Chairman*

PHYSICIAN DISTRIBUTION COMMITTEE

At intervals over the past two years, representatives of the Institute of Agricultural Medicine and of several other departments at the State University of Iowa have conferred with IMS groups regarding a proposed survey designed to determine, as objectively as possible, what characteristics or facilities a small Iowa town must possess in order to persuade physicians to start practice there, and to remain. Originally, the S.U.I. delegation met with the Rural Health Committee, but more recently either with the Physician Distribution Committee or with some of the IMS officers.

Attempts that were made 18 months or more ago to get one of the national philanthropic foundations to underwrite a comparatively modest version of the project proved unsuccessful, but early last summer Edwin N. Thomas, Ph.D., of the S.U.I. Department of Geography, the man who was to direct the work, was told in Washington that federal moneys might be available for the purpose.

At a meeting in Iowa City on July 12, 1961, the representatives of the University asked several officers of the IMS whether our Society would consent to their applying to the U.S.P.H.S. for financial backing, and since the federal government probably wouldn't be anxious to pinch pennies, they proposed an expansion of the project from the originally-planned pilot study costing at most $7,350, into a three-year survey costing $100,000. Subsequently, the IMS Executive Council agreed to have physicians cooperate in formulating the prospectus to be used in the application for a federal grant, but to date no meeting has been held for that purpose.

Within the past month, Dr. Thomas has agreed to accept a teaching position in the Southwest, and he will be leaving Iowa within a relatively short time. Whether there is someone else at S.U.I. who can adopt his project and who wants to apply for federal money to finance it, the IMS hasn't been told.

ROBERT E. GRIFFIN, M.D., *Chairman*

PRECEPTORSHIP COMMITTEE

Enrollment for the 1962 Preceptorship Program has progressed somewhat more rapidly than in past years, for 79 physicians had enrolled as of March 8. Yet, since the requirements for graduates from the S.U.I. College of Medicine include the completion of a month's preceptorship and since there are approximately 115 students who must be provided preceptorship opportunities this year, many additional preceptors are still needed. As a matter of fact, the number of preceptors should exceed the number of preceptees, in order that last-minute drop-outs, etc. won't cause difficulties.

At a meeting of the Preceptorship Committee in Iowa City on November 14, 1961, Dr. C. E. Radcliffe sketched the new plan under which the instruction of juniors and seniors at the S.U.I. College of Medicine was then being reorganized. The arrangement wasn't yet complete, he said, but chiefly to facilitate more efficient use of clinical material at University Hospitals each of the two upper classes was to be broken into groups of no more than 12 or 13 students, and the school was to be kept in operation 11 or 11½ months each year. Roughly one-fifth of the students in those two upper classes were to be on vacation at any given time.

This new schedule, Dr. Radcliffe said, will make it possible to arrange for preceptorships during the fall, winter and spring months, whereas in past years all of them have had to take place during the summer. The students were to be told just when they could plan to serve their respective preceptorships.

The Committee members expressed satisfaction over this development, for several of them had long felt that students could see a greater variety of pathologies in private practice during the colder months, and some preceptors' wives had found it inconvenient to have students in their homes during the summer.

On the preceptorship enrollment forms, doctors will continue to be asked to indicate the time at which they prefer to take preceptees, but since only a few students will be available during any particular month, under the new system, it may be impossible to grant some physicians their first choices of times. This is most likely to happen to doctors who have requested particular students as preceptees. They can be sure, however, that the faculty of the College of Medicine will do its best to suit their convenience.

The Committee expects that the scheduling of preceptorships throughout the year will simplify the preceptor-recruitment problem since physicians who especially enjoy teaching will be able to take two or more students, at different periods, and fewer preceptors will be needed.

At the November 14 meeting there was again some discussion of whether preceptors should take students to live with them in their homes during preceptorships, and again there were differences of opinion. It was agreed, however, that individual doctors may choose for themselves in that regard.

The Committee members discussed techniques for evaluating the Preceptorship Program. Dr. Radcliffe said he was assembling materials to serve as an exchange of observations on the program between students and private practitioners. The Committee decided that it would like to have the resultant manuscript published in the JOURNAL OF THE IOWA MEDICAL SOCIETY.

D. G. SATTLER, M.D., *Chairman*

COMMITTEE ON BLOOD BANKING

After receiving numerous requests for information concerning blood banks, the Committee on Blood Banking communicated with presidents and secretaries of all county medical societies. The county societies were advised that through an agreement between the American Medical Association and National Red Cross, made in 1947, no Red Cross facility may be set up in any county without permission of the county medical society. Many members of the IMS were unaware of this agreement and of the responsibility which county medical societies have in the matter.

County medical societies have been asked to keep the Committee informed on local blood banking activities.

WALLACE RINDSKOPF, M.D., *Chairman*

CHIROPRACTIC COMMITTEE

It has become obvious that the chiropractors in Iowa, on the national level, and in Canada have been stimulated to a greater degree of activity than was present previously. This increased activity by chiropractors connotes a desire by that group for a transition from passive recognition to complete acknowledgement of chiropractic as an accepted scientific branch of the healing arts. This trend is being watched closely by Chiropractic Committee.

The Committee reviewed the past status, considered the present thinking and trend of chiropractic and formulated some ideas on the future possibilities of chiropractic, which it will present to the House of Delegates. A comprehensive report for presentation in May is now being prepared.

R. A. BERGER, M.D., *Chairman*

MEDICAL ASSISTANTS ADVISORY COMMITTEE

The Iowa Association of Medical Assistants continues to show enthusiasm and progress. For the fourth year IAMA will have a booth at the state medical convention. The In-service Work Shop at the State University of Iowa under the leadership of Dr. Wm. Coder was held in September with a full attendance. The state convention was held in Davenport in May and was well attended also.

The Placement Bureau with the Iowa State Employment Service is in operation and deserves cooperation from the doctors.

The national organization, American Association of Medical Assistants, is initiating a Certification Program for medical assistants. During the convention in Detroit in October, 1962, a number of medical assistants will take the preliminary tests as a trial run. Suggested courses of study for local chapters to prepare their members for taking the certifying examinations will be issued to each chapter during the year.

We consider this a fine group and worthy of more support from the doctors of the Iowa Medical Society.

FLOYD A. SPRINGER, M.D., *Chairman*

COMMITTEE ON SCIENTIFIC EXHIBITS

At the 1961 Annual Meeting, the Scientific Exhibit Section consisted of 46 exhibits with a total of 3,144 square feet of floor space. The assembling of these excellent displays involved considerable time and effort, as well as expense, and the Committee is most grateful to the participants for their contributions to the success of the Scientific Exhibit Section.

Arrangements for the Scientific Exhibit Section of the 1962 meeting are well under way at the time this report is submitted, and it would appear that there will be more exhibits of a truly scientific nature on display this year. The Committee is pleased with this trend, and wishes to take this opportunity to urge all members of the Society to give serious consideration to preparing scientific exhibits for future meetings. The Committee also wishes to stress the importance of visits to the Scientific Exhibit Section by all physicians attending the meeting. It will be a valuable experience to the viewer, and the interest shown will be a great source of satisfaction to the exhibitors.

JAMES T. MCMILLAN, M.D., *Chairman*

RELATIVE VALUE STUDY COMMITTEE

As of the date of this report, the Relative Value Study Committee has held six formal meetings to consider revisions in the Iowa Unit Fee Index. In addition, an untold number of hours have been devoted to this project by individual members of the Committee. The 36 hours spent at committee meetings has been only a small part of the time given this project.

This report will briefly outline the Committee's activities during the past few months:

May Through October

(1) Consulted with specialty organizations requesting a list of procedures for inclusion in a new index; (2) Evaluated the IBM tabulations to determine the usual, reasonable charge in Iowa for each procedure surveyed; (3) Compared survey results with listed units in the Iowa Unit Fee Index.

October 11-November 1

(1) Drafted a tentative list of procedures for inclusion in the new index; (2) Again consulted with specialty groups.

November 1-November 29

(1) Drafted "General Information and Instructions," for the sections on "Medicine" and "Surgery"; (2) Considered suggestions of specialty groups on procedure listings.

November 29-December 20

(1) Working from the results of the statewide survey and other pertinent material, the Committee established a relative value for each procedure.

December 20-January 10

(1) Subsection on surgery held special meeting to consider relative values for that section; (2) The whole Committee continued the work of establishing relative values for procedures in each section.

January 10-February 7

(1) Sent to each specialty group a list of applicable procedures (including a listed value for each procedure) asking for comments.

February 7-March 7

(1) Made final revisions to "General Information and Instructions" for section on "Surgery"; (2) Considered suggestions from specialty groups.

Prior to the meeting of the House of Delegates, the

Committee will submit a draft of the proposed index to the Executive Council for comment. The Committee's recommendations and proposed Relative Value Index will be presented to the House of Delegates for final action at its meeting in May.

Every effort has been made to consult with all interested parties and, when feasible, to incorporate their suggestions into the proposed index. The Committee wishes to express its appreciation to the individuals and organizations that have assisted in this project.

FRED STERNAGEL, M.D., *Chairman*

COMMITTEE ON AUTOMOTIVE SAFETY

The Iowa Medical Society's Automotive Safety Committee met in August with representatives of the Cornell University Automotive Crash Injury Research Program to discuss the possibility of cooperating in a survey to determine causes of injuries and deaths to occupants of late-model passenger cars involved in accidents.

The Iowa-Cornell study was approved by the Committee and the Executive Council, and was initiated on February 1. Other cooperating agencies are the State Department of Health, Iowa Hospital Association, and Iowa Highway Patrol.

The purpose of the survey is to collect reliable data on the specific causes of injury to occupants of cars involved in accidents, rather than on the causes of the accidents themselves. The study will take two years to complete, and doctors in each of the four quarters of the state will make reports only during a specified six-month period.

Information regarding this project was transmitted to all county medical society presidents and secretaries, and an informational article was published in the "In the Public Interest" section of the February JOURNAL. The Committee has been informed recently that Iowa physicians are cooperating wholeheartedly in the survey. To date, approximately 30 accidents per month have been reported.

The chairman of the Committee was appointed by Mr. Carl Pesch, the Iowa commissioner of public safety, to serve on the Commissioner's Coordinating Committee for Traffic Safety. A major objective of the Coordinating Committee is to tie together the efforts of the Medical Society, the Department of Public Safety, the Department of Health, and the Department of Public Instruction in improving highway safety. The Coordinating Committee hopes to present useful information to the Highway Study Committee of the 1963 Legislature.

At its October meeting, the IMS Committee considered a request from Commissioner Pesch to develop specific recommendations regarding minimum physical standards that an individual should have to meet in order to obtain a license to operate a motor vehicle. The Committee has not taken action on this matter, but has it under study and will seek the opinions of qualified physicians in various specialties. The Commissioner has been told the reason for the delay, and has also been informed that the AMA is in the process of developing a list of minimum physical requirements for automobile drivers, which may be useful as a guide for both the Iowa Medical Society and the Iowa Department of Public Safety.

The Committee adopted a resolution urging every physician in Iowa to use seat belts, and advocating legislation making the installation and use of seat belts compulsory in all cars. The resolution was approved by the IMS Executive Council, and received statewide publicity.

In addition to continuing to work on the projects outlined in this report, the Committee also plans to study the value of psychological testing of drivers; to continue its support of an "implied consent" law; and to support legislation making specific safety features compulsory in all automobiles, as recommended by competent authorities.

A list of films on automotive safety, available from the AMA and other sources, was printed in the Educational Bulletin of the Department of Public Instruction, which is mailed to all schools in the state. The IMS has received approximately 35 requests for the use of these films, and appropriate arrangements for film showings have been made.

The Committee chairman represented the Society on a television program produced on WMT-TV, March 14, and reviewed activities in connection with automotive safety.

A. H. DOWNING, M.D., *Chairman*

OSTEOPATHIC COMMITTEE

At the AMA House of Delegates meeting in New York City, June 26-30, 1961, the following policy concerning the voluntary association of doctors of medicine with doctors of osteopathy was adopted:

"1. There can never be an ethical relationship between a doctor of medicine and a cultist—that is, one who does not practice a system of healing founded on a scientific basis.

"2. There can never be a majority party and a minority party in any science. There cannot be two distinct sciences of medicine or two different, yet equally valid, systems of medical practice.

"3. Recognition should be given to the transition presently occurring in osteopathy, which is evidence of an attempt by a significant number of those practicing osteopathic medicine to give their patients scientific medical care. This transition should be encouraged so that the evolutionary process can be expedited.

"4. It is appropriate for the American Medical Association to *reappraise its application of policy* regarding relationships with doctors of osteopathy, in view of the transition of osteopathy into osteopathic medicine, in view of the fact that the colleges of osteopathy have modeled their curricula after medical schools, in view of the almost complete lack of osteopathic literature and the reliance of osteopaths on and use of medical literature, and in view of the fact that many doctors of osteopathy are no longer practicing osteopathy.

"5. Policy should now be applied individually at state level according to the facts as they exist. Heretofore, this policy has been applied collectively at the national level. The test now should be: Does the individual doctor of osteopathy practice osteopathy, or does he in fact practice a method of healing founded on a scientific basis? If he practices osteopathy, he practices a cult system of healing, and all voluntary professional associations with him are unethical. If he bases his practice on the same scientific principles as those adhered to by members of the American Medical Association, voluntary professional relationships with him should not be deemed unethical.

"There are several methods to evaluate the profes-

sional, ethical, and scientific competence of practitioners of medicine. The constituent medical association shall use the same criteria to evaluate the professional, ethical, and scientific competence of those practicing osteopathic medicine. It might be helpful, in addition, to evaluate the professional and scientific competence of a doctor of osteopathy according to his professional education and the type of examination given and the license granted to him by the state in which he practices. It might be possible to establish these standards through the development of state liaison committees of doctors of medicine and doctors of osteopathy. In some states, it might be possible to initiate and complete negotiations for the elevation of osteopathic schools to educational equivalence with medical schools according to the standards of the Council on Medical Education and Hospitals."

In view of the change in AMA policy, which transfers responsibility for policy regarding relationships with doctors of osteopathy to the state level, the Osteopathic Committee in October, 1961, made the following recommendation to the Judicial Council regarding the policy in Iowa:

1. That the state and national policy statements prior to June, 1961, be reaffirmed as the official policy of the IMS. This action will enable the committees and officers of the Society to answer inquiries and questions that will arise in view of the AMA's change in policy.

2. The Committee also recommends that this policy stand until the Committee can devote additional time and study to the practice of osteopathy in Iowa, in order for it to determine what further recommendation should be made regarding ethical relationships between the two professions.

The Judicial Council approved the Committee's recommendation, and the Judicial Council's action was reported to the Executive Council for its information.

In reporting to the Judicial Council, the Committee made it clear that it and the MD/DO Liaison Committee have made a real effort to determine what improvements and changes have taken place in the education of osteopaths that would justify a change in IMS policy. So far, efforts to make this determination first-hand have been unsuccessful.

The Committee wants to stress to the membership that when results of the Committee's activities indicate the advisability of a change in policy, appropriate recommendations will be made.

We wish to call attention to the separate report of the MD/DO Liaison Committee, and ask that it be read in conjunction with this report.

J. M. RHODES, M.D., *Chairman*

MD/DO LIAISON COMMITTEE

The MD/DO Liaison Committee has held three meetings during the past year with representatives of the Iowa Society of Osteopathic Physicians and Surgeons. At least one additional meeting will be held prior to the House of Delegates meeting, and the results of that meeting will be presented as a supplemental report, if necessary.

As indicated in last year's report to the House, an effort was made during 1961 to arrange a visitation to the Des Moines College of Osteopathy. Unfortunately, satisfactory arrangements have not been agreed upon, and the possibility of any immediate visitation seems remote.

The Committee has reviewed very closely the relationships between doctors of medicine and osteopaths that exist in other states. Several states have adopted new policies as a result of the 1961 AMA action, but no definite pattern is being followed. Information is being requested from states that are adopting new policies in this area, and the Committee is in continual contact with the AMA in order to obtain the latest information on what the several state societies have reported to national headquarters.

The IMS Osteopathic Committee continues to advise the Liaison Committee in these negotiations. The report of the Osteopathic Committee should be read in conjunction with this report.

At this stage, the MD/DO Liaison Committee has not formulated any final recommendations, but feels the Committee should continue its meetings with representatives from the Iowa Osteopathic Association to discuss problems of mutual concern and interest.

J. M. RHODES, M.D., *Chairman*

COMMITTEE ON NATIONAL EMERGENCY MEDICAL SERVICE

This has been a very busy year for the IMS Committee on National Emergency Medical Service. Efforts have been made constantly to keep the Judicial Council and the Board of Trustees of the Society abreast of the Committee's activities. The chairman desires to express his sincere appreciation to those bodies for their excellent cooperation and their words of encouragement.

The most striking activity of this Committee came about as a result of the joint effort of the AMA, the United States Department of Defense and the U. S. Public Health Service in inaugurating the nationwide Medical Self-Help Training Program. The Governor of the State of Iowa made the IMS Committee chairman a member of the State Advisory Committee for this program. The other members appointed were the State Commissioner of Health, the Director of the State Department of Public Instruction and the State Director of Civil Defense. The members of the Advisory Committee attended a four-day workshop at the headquarters of the Office of Civil and Defense Mobilization, in Battle Creek, Michigan, in December, 1961. A report of the plan developed by the Governor's Committee has been submitted to the Society. The Medical Self-Help Training Program is a highly desirable endeavor, and all members of the IMS are urged to cooperate whole-heartedly at the local level to insure its maximum effectiveness. Attempts have been made to inform physicians on this program, and several progress reports have been transmitted to county society presidents and secretaries. Each physician in Iowa is to receive a copy of the "Family Guide—Emergency Health Care Manual" which will serve as the "textbook" of the Self-Help Training Program.

An area meeting held at Oelwein in November, 1961, was well attended and promoted much interest in emergency medical care. Dr. D. J. Ottilie was very active in the organization of that workship meeting, and much of the credit for its success goes to him. The one-day meeting reviewed the role of the health professions in civil defense and disaster planning, and also gave consideration to the problem of radiation effects in the management of such casualties. Representatives of the Iowa Interprofessional Association participated in that discussion. It is the recommendation of this

Committee that similar workshops be held in all other areas of the state to provide local assistance and to stimulate interest.

The chairman of this Committee attended an AMA-sponsored regional meeting of representatives of the eight midwestern states in Denver on September 16, 1961. A report of this meeting has been previously submitted to the Society.

Another national-level meeting attended by the chairman, as well as by a number of other Iowa doctors, was the Twelfth Annual County Medical Societies Conference on Disaster Medical Care, sponsored by the AMA in Chicago in November, 1961. A report of that meeting has likewise been previously submitted to the Society.

Close liaison has been maintained between the Committee and the Iowa Interprofessional Association. This has resulted in the appointment of civil defense and disaster planning committees in all counties. Further information on these counties appears in the report of the IMS Committee on Interprofessional Activities.

The film "Disaster Planning," produced by the IMS, continues to be utilized quite actively in Iowa, and also in many other states. This film is listed in the AMA directory of films related to disaster medical care, and in consequence of that listing it is anticipated that further demand will be made for it. This film depicts the principles of planning for disaster, and the results of actual disaster drills.

Several presentations have been made to county medical societies and to other interested groups regarding disaster planning and emergency medical care. There have been a number of requests to the chairman for talks, as well as for items of information, from throughout the state.

The Committee hopes to develop a standardized program for the provision of medical care at the state level. To obtain useful information for this project, a survey has been made of the county medical societies to determine the local emergency medical care programs. Approximately 35 per cent of the local societies responded to the questionnaire. There are excellent plans in some areas, but in others no plans have been developed. Compilations of the materials returned are still in progress, and it is hoped that a definite plan for disaster medical care can be provided in the form of a manual for guidance to the local planning groups. The primary problem constantly facing the Committee is the dissimilarity of facilities available locally. It is hoped that some form of assistance may be provided which will be applicable to all areas in order that many questions which have arisen may be answered, and definite informative material made available to all those concerned.

It is the desire of this Committee to provide information as it becomes available for the entire medical profession on the problem of disaster medical care. Heretofore there have been many conflicts, but the state is much further along than it was five years ago. Progress is slow, but it is taking place in all facets of the workings of this Committee.

The chairman wishes to express his appreciation to the Committee members for their assistance during the past year. Also a word of thanks is due to the staff of the IMS for carrying the great load of correspondence and footwork necessary to the functioning of the Committee.

M. E. ALBERTS, M.D., *Chairman*

ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

The Advisory Committee to the Woman's Auxiliary has seen an active year, in which there has been growth of the Auxiliary as well as increased work in many fields, including legislation, mental health, community service, health education and recruitment for allied medical careers.

That the Auxiliary is honored and held in high esteem is demonstrated by the cooperation given it by the medical societies at the county and state levels, and by the requests they make for its assistance in their programs.

Enthusiasm for community health projects and willingness to assume responsibility for community tasks are in themselves valuable to medical public relations. The Auxiliary has shown its ability to cooperate through its many representatives on the boards of various organizations and institutions, and on the councils of local and state groups. Those representatives have made every effort to see that all Auxiliary members are kept well-informed and trained through attendance at workshops and conferences.

The Auxiliary continues its untiring activity in the legislative field, taking its directives from the Woman's Auxiliary of the AMA, but always getting approval from the Iowa Medical Society. The Iowa Auxiliary was one of the first such state organizations to cooperate with the American Medical Association in its WHAM (Women Help American Medicine) Campaign by holding an all day workshop for Auxiliary members in February.

The Health Educational Loan Fund Committee, with a loan fund exceeding $10,000 for use in helping students secure training for paramedical careers, has made its fiftieth loan. The students helped have been mainly in nursing, but two have been in the medical technology field. All loans are being repaid following the students' graduation, as is called for in the contracts. The Benefit Dance, held at annual meeting time each of the past six years and supported by members of the medical society through ticket purchases, has added measurably to the Fund. The Committee hopes for unsurpassed participation at the seventh of these parties, which will be held this year. Each Auxiliary member also assists in supporting this Fund through a contribution of fifty cents annually.

The Auxiliary continues to sponsor Future Nurses Clubs or Health Careers Clubs in many high schools. These help a great deal to stimulate activity in health careers recruitment. A one-day conference for these clubs and their sponsors is an annual event. The 1961 meeting held at Broadlawns-Polk County Hospital, Des Moines, was well attended.

The AMEF Committee of the Auxiliary, through various projects, contributed $2,039.97 to the support of the nation's medical schools. That sum represented an average of $1.76 per member in 1960-1961.

As a part of the community service program, the Auxiliary has again sponsored the AAPS Essay Contest with the consent and assistance of the Iowa Medical Society. The contest encourages high school students to learn the advantages of free enterprise and private medical care. The granting of an award to the outstanding lay woman in the volunteer health service field will be made at the Auxiliary's Annual Meeting.

The members of the Handicapped Craft Sales Committee continue to cooperate with the Iowa Society for

Crippled Children and Adults by arranging to market products made by handicapped people and by assuming the roles of saleswomen during the sales. The improvement in merchandise offered for sale and the cooperation of department stores and one county fair in providing space for the six sales held in the state helped make this year's projects highly successful. All proceeds from the sales go to the individuals who made the articles, and thus the Auxiliary has a definite part in a rehabilitation program.

The Auxiliary's committees on civil defense, safety, mental health, and rural health have all been active both locally and at the state level, and the organization has participated in the Senior Day Program at S.U.I. There are others of the women's activities that I should like to mention if space in this HANDBOOK were not limited.

Many projects are suggested to the county Auxiliaries, and each of these local groups, with the approval of its county medical society, chooses the ones that seem to meet the needs of its particular community. Auxiliary members who belong to other community organizations can be responsible for coordinating the various health programs of these organizations, and thereby help create effective educational programs. The Iowa Medical Society and its Auxiliary are jointly interested in all programs that make communities healthier, happier, and safer places in which to live.

Two new Auxiliaries have been organized the past year, and the member-at-large count in unorganized counties is now 125, many of the concentrations of members-at-large being numerous enough to assure the formation of additional county Auxiliaries in the future. The membership in nearly all counties in the state gives the Iowa Medical Society and its Auxiliary valuable outlets for disseminating information and distributing materials.

Although the membership of the Auxiliary is increasing uninterruptedly, this Committee continues to urge county medical societies to help doctors' wives organize Auxiliaries, if they haven't already done so.

GEORGE H. SCANLON, M.D., *Chairman*

COMMITTEE ON NURSING EDUCATION AND SERVICE

The Committee on Nursing Education and Service has held no formal meetings during the past year, but has acted in an advisory and consulting capacity several times.

The Committee has been represented at all meetings of the Iowa Nursing Careers Committee, which has now been reorganized as the Health Council of Iowa to cover recruitment for all medical and allied careers.

The chairman of the Committee was invited to attend a joint Iowa League for Nursing-Iowa Medical Society committee meeting to participate in the discussion of nursing education problems in Iowa. These inter-organizational meetings are scheduled to continue.

The Committee reports a new two-year nursing program scheduled to open in the fall at the Fort Dodge Junior College, which will grant an associate degree in nursing. The program has been worked out through the Junior College, the Fort Dodge Board of Education, the city hospital administrators and other interested persons in the community, as well as the League for Nursing and the Iowa Board of Nurse Examiners.

The Committee continues to familiarize itself regarding curricula for the various types of nursing education, and on the accreditation of nursing schools.

All IMS members are urged to apprize this Committee of their recommendations or suggestions on how best to assist in meeting the continued shortage of qualified bedside nurses.

HENNING W. MATHIASEN, M.D., *Chairman*

HISTORICAL COMMITTEE

The Historical Committee has sent a letter to each county medical society urging the appointment of one member as historian of the county society.

Upon completion of a history, it is suggested that a copy be sent for filing in the office of the Iowa Medical Society.

It is urged that each county society make a conscientious effort to compile a medical history of the county.

DENNIS H. KELLY, SR., M.D., *Chairman*

COMMITTEE ON GROUP INSURANCE

The Committee on Group Insurance has reviewed the IMS-approved program for group accident and sickness coverage with Mr. Prouty, of Holmes, Prouty, Murphy & May, the administrators. This program has been in operation for a number of years, and the Committee was told that the claim experience has been satisfactory and that there have been no complaints regarding it.

The group accidental death and dismemberment insurance program that had been recommended by the Group Insurance Committee and approved by the Executive Council did not receive the required 50 per cent enrollment. Consequently, the program has been withdrawn.

The IMS statewide group Blue Cross-Blue Shield program has been very successful, and the claim experience for the past year has been favorable. This is an experience-rated group in which adjustments in rates were to be made where indicated. For 1962, the Blue Cross-Blue Shield total premium will remain the same. Rates were increased slightly for members holding Blue Cross and only x-ray and laboratory under Blue Shield. During the open enrollment period in the fall of 1961, a total of 108 new members were added to the statewide group.

The Committee recently reviewed and recommended a proposal submitted by the Bankers Life Company, through Holmes, Prouty, Murphy & May, for a group-life open enrollment period effective February 1, 1962. The four-month open enrollment period will be for members of the Society who are not now insured under the group life insurance program. If at least 200 uninsured members make application for this coverage before May 31, 1962, all eligible members will be accepted regardless of insurability. In the event that fewer than 200 eligible members apply, the Bankers Life Company will require evidence of insurability satisfactory to the company. In addition, Bankers Life has agreed to offer additional insurance to members now insured for the full amount presently available. The additional insurance will be strictly subject to insurability satisfactory to the company. The maximum amount of coverage available for members under age 60 will be $20,000, and for members from 60 through 64 it will be $15,000. The premium rates for the new policies are on a new low-rate basis. The rates charged to presently insured physicians will, in the future, be made comparable to those charged to new policyholders through an appropriate adjustment in future dividends.

At the request of an individual physician, the Committee discussed raising the age limit for coverage under the group life program to age 75. After thorough consideration of this matter, the Committee agreed that a change of this type would, perhaps, be dangerous to the entire group-life program, and that no change should be recommended.

The Committee reviewed a copy of a resolution submitted by the New York Medical Society at the 1961 AMA Interim Session recommending disapproval of the proposed AMA group disability program. The Committee is in sympathy with the New York resolution, for it feels that the Iowa program is working satisfactorily and that there is no pressing need for a similar program at the AMA level.

W. O. PURDY, M.D., *Chairman*

IOWA BAR LIAISON COMMITTEE

No problems were presented to the Iowa Bar Liaison Committee during the past year, and it was not necessary to have any meeting with the corresponding committee of the Iowa Bar Association.

Members of the Committee attended a medical-legal seminar held at the Hotel Warden at Fort Dodge in October. A great many of the attorneys of the area also attended.

Several informal gatherings of the local medical and legal committees of county medical societies have been held throughout the state as strictly social affairs.

J. M. TIERNEY, M.D., *Chairman*

MEDICARE CLAIMS COMMITTEE

During the past year it was not necessary for the Committee to meet solely for the purpose of adjudicating Medicare claims. The few problems that did arise involved merely the proper coding of medical procedures. Iowa Medical Society staff personnel were able to handle these claims through consultations with individual members of the Committee. We feel that payments have been made to physicians strictly in accordance with the authorized Medicare allowances.

In addition to Medicare claims, we have again been asked by the Iowa Medical Society to review vendor payment claims submitted to the Department of Social Welfare by county medical and remedial care committees. We have also reviewed claims questioned by the Department of Social Welfare and not referred by a county committee.

It is well to note that from May 1, 1961, through January 31, 1962, a total of 124,528 claims were submitted by approximately 1,600 physicians participating in the vendor payment program. During this period $1,266,136 has been paid to physicians through the Department of Social Welfare.

Just nine cases have been submitted to the Committee for adjudication. Each of those nine has been thoroughly reviewed. The majority of these cases involved allegedly excessive drug prescribing by physicians. In two instances doctors came to Des Moines to meet with the Committee, and in one instance a member physician in the local area investigated the case. Physicians have cooperated by securing consultation, when it was felt advisable, or by submitting detailed medical records to the Committee. We continue to be impressed by the helpful attitude of physicians toward inquiries by the Committee.

We are disturbed to note what appears to be a trend on the part of certain employees of the Department of Social Welfare to encourage physicians to limit services rendered to welfare recipients. Physicians have rightly insisted to us that these patients are entitled to the same standard of medical care received by private patients. We are also disturbed by the fact that the Board of Social Welfare released details on one vendor payment case to the press media before referring the case to our Committee. This action resulted in unfavorable and unjust publicity for the Iowa Medical Society. Investigation of that particular case has been carried out. Consultation has confirmed the fact that the recipients in question were and are seriously ill and require the medications prescribed for them.

In summary, the Committee believes that it may be advisable to carry out an extensive reappraisal of the proper relationship between the Department of Social Welfare and the Iowa Medical Society. Better methods of processing and adjudicating claims should be a primary aim for such a study.

J. H. KELLEY, M.D., *Chairman*

COMMITTEE ON PARAMEDICAL SERVICES

The Committee on Paramedical Services has had no meeting during the past year and no matters were referred to it.

F. E. THORNTON, M.D., *Chairman*

POLICY EVALUATION COMMITTEE

By action of the 1961 House of Delegates, the IMS Policy Evaluation Committee was continued in being, to study Blue Shield problems as they arise, and to advise and make recommendations to the Society regarding their disposition.

Recently, the IMS President requested the Committee to study and make appropriate recommendations with regard to the proposed National Blue Shield Senior Citizens Program. As of this date, all available information on this program has been disseminated to the members of the Committee. At the proper time, a meeting of the Committee will be held and recommendations formulated.

The results of the Committee's deliberations will be reported to the proper policy-making body of the Iowa Medical Society as soon as possible.

W. L. DOWNING, M.D., *Chairman*

BLUE SHIELD UTILIZATION AND FEE COMMITTEE

During the past year the Blue Shield Utilization and Fee Committee has not been activated. The Committee was formed in 1959 to consider fee and claims problems in connection with the Blue Shield "Blue Chip" program, but no claims have been reviewed during the 1961-62 year.

KING-ANDERSON PLANNING COMMITTEE

In order to coordinate the efforts of the Society in opposing the proposed King-Anderson Bill which would attach the financing of health care for the aged to the Social Security system, the Board of Trustees recommended that a state planning committee be created—one that would represent important segments of the Society. The president appointed a representative from the Board of Trustees, the Judicial Council,

the AMA Delegation, and the Legislative and Public Relations Committees, as well as the Woman's Auxiliary.

In May, 1961, an "Action Program for County Medical Societies" was formulated which gave suggestions on methods to be used in opposing the expansion of Social Security "benefits" to include health care for the aged. Each county medical society was urged to appoint a local King-Anderson action committee to put the suggested program into operation.

Through the county K-A committees, thousands of pamphlets have been disseminated, display posters have been sent to hundreds of physicians' offices, over 1,000 newspaper ad mats have been mailed, and well in excess of 100 records, "Ronald Reagan Speaks Out Against Socialized Medicine" are in circulation. The State Society office has received copies of letters, resolutions and petitions in addition to reports regarding TV programs, radio announcements, newspaper ads, community meetings, letters, petitions, debates and speeches given by physicians telling medicine's story to the public.

Since the First Session of the 87th Congress did not take a vote on H.R. 4222, it was necessary in January of this year to increase the activity of the county K-A committees. In order for this effort to be effective, the "Action Program" was revised and brought up to date. Contacts were made with all county K-A committee chairmen to stimulate activity once again. A program similar to the campaign of opposition carried out last summer is being conducted. The results of this program have been gratifying, but increasing activity by every physician in the entire state will be necessary if our objective is to be accomplished.

This Committee and the Committee on Legislation will have more up-to-date information to present to the House of Delegates at the May meeting.

C. W. SEIBERT, M.D., *Chairman*

PODIATRY COMMITTEE

As instructed by the House of Delegates, the Podiatry Committee is holding meetings with representatives of the Iowa Podiatry Association and gathering informational material in order to give consideration to the ethical relationship between physicians and podiatrists.

The Committee questioned other state medical societies to obtain pertinent background information on this subject. Forty state societies answered the questionnaires, and the resultant wealth of material will be of great value to the Committee in formulating its opinions and recommendations.

Several questions regarding the practice of podiatry are being considered by the Committee, and its final conclusion will be presented to the House of Delegates in a supplemental report.

J. E. KELSEY, M.D., *Chairman*

COMMITTEE ON RADIATION CONTROL

The Committee on Radiation Control was appointed during 1961 in conformance with an action by the House of Delegates at its April, 1961, meeting. Its function is to consider all aspects involving the field of radiation and its hazards. The action of the House of Delegates was prompted in part because the Atomic Energy Commission had recently expressed an intent to decentralize and to confer many of its responsibilities on the states. Several states are considering legislation conforming to the A.E.C. formula, and the IMS strongly supported the Radiation Control Bill (House File 637) introduced in the 59th General Assembly of Iowa. It was approved by the House, but the session was adjourned before the Bill reached the Senate.

The Radiation Control Committee met on January 24, 1962, and until laws are enacted it decided to devote its efforts to a consideration of radiation control legislation which will be acceptable to our Society and to the Iowa Legislature.

Each member of the Committee had been provided with a copy of the 1961 Bill as passed by the House, for individual study. There was lengthy and complete discussion of proposed legislation including the degree of control the Department of Health should have over radiation devices in offices of physicians, dentists, and other users. It was the unanimous consensus that, if possible, the section of the Radiation Control Bill dealing with the Advisory Council personnel should avoid mentioning specific specialties but should emphasize the inclusion of those with specific knowledge and experience in this area.

The Committee further agreed that it should continue in existence, as originally planned, so that the members would be available as consultants or advisers to the State Advisory Council on Radiation Control, when such an agency is finally activated.

FRANK R. PETERSON, M.D., *Chairman*

COMMITTEE ON PROBLEMS OF AGING

The Committee on Problems of Aging, during this first year of its existence, has consisted of Dr. Oscar Alden, Dr. A. C. Wise, Dr. E. E. Linder, Dr. E. B. Floersch, and the chairman, Dr. Wm. J. Morrissey. This year it has been gathering background information as to the problems of aging and as to the responsibilities of the Iowa Medical Society with regard to them.

The chairman of the Committee attended the Fourteenth Annual Conference on Aging, entitled "Politics of Age," at the University of Michigan. This meeting was summarized orally for the IMS Executive Council, and a written report is in the minutes of that Council meeting.

A brief meeting of the Committee was held on June 17, 1961, at the Fort Des Moines Hotel, in Des Moines, with Drs. Alden, Wise and Morrissey present. That was immediately prior to the meeting at which the delegates to the January, 1961, White House Conference reported to the Iowa Commission for Senior Citizens. Your Committee also attended the ensuing gathering, and a report of that meeting was also submitted to the Executive Council of the Iowa Medical Society.

Dr. Oscar Alden attended the Second National Conference of the Joint Council to Improve the Health Care of the Aged, at the Edgewater Beach Hotel, Chicago, on December 15 and 16, 1961, and submitted an excellent summary of the highlights of that meeting to the Executive Council of the Iowa Medical Society.

Your chairman is a member of the present Governor's Commission on Aging, and in that capacity attended a conference at Iowa State University on October 17, 1961. That conference was titled "Housing Iowa's Aging Citizens."

The chairman would like to take this opportunity to express his appreciation for the effort and interest displayed by the members of the Committee.

WM. J. MORRISSEY, M.D., *Chairman*

SUBCOMMITTEE ON MEDICAL PRACTICE IN HOSPITALS AND NURSING HOMES

The Subcommittee on Medical Practice in Hospitals and Nursing Homes met in Des Moines on October 12, 1961. The main order of business was a survey of the practice of the specialty of physiatry in the rehabilitation centers that exist or may be set up in Iowa. The settlement between doctors and hospitals in 1957 which resulted in House File 21 concerned only radiology and pathology. Members of the Subcommittee felt that the same arrangements should apply to physiatry, and that the details should be worked out among doctors, hospitals, Blue Shield and Blue Cross on a similar basis.

A special and smaller subcommittee was appointed to work out the details. That group, under the chairmanship of Dr. Arthur P. Echternacht, met on December 6, 1961, and further progress was made. The first step was the determination of what was medical and what was hospital service. Blue Shield members met with that group, and plans are now being made for Blue Shield to assume coverage of the various modalities on a fee-for-service basis. The contracts would then provide coverage for physiatry as is done under X-L for the services rendered by the physician.

The Subcommittee also decided, at its meeting in October, to make a survey of the medical supervision of radiology and pathology that is being provided in Iowa hospitals, in accordance with the provisions of House File 21.

Electrocardiographic interpretation by physicians in hospitals is another medical service which the Subcommittee hopes can be placed in the same category as physiatry, pathology and radiology.

W. L. DOWNING, M.D., *Chairman*

SUBCOMMITTEE ON ADOPTIONS

This Subcommittee is part of the Interprofessional Adoption Study Committee, the remainder being made up of members of the Iowa State Bar Association and representatives of various social and child welfare agencies.

Several meetings have been held and many hours have been spent in discussions, with the aim of proposing a modification of the Uniform Adoption Law to the 1963 Legislature. There have also been meetings with the legislators who are members of the Children's Code Legislative Advisory Committee.

Uniformity in pre-placement investigations, as applied to private and agency adoptions, has been a serious obstacle in the discussions. Although some private placements have received adverse publicity, it seems impractical to try to outlaw them at present, mainly because of a shortage of trained and qualified social and child welfare workers in some areas of the state.

The Committee will bring specific proposals to the Society for approval as soon as they have been formulated.

R. L. WICKS, M.D., *Chairman*

PUBLICATIONS COMMITTEE

The JOURNAL OF THE IOWA MEDICAL SOCIETY is being conducted as economically as seems consistent with the satisfactory performance of its scientific and organizational news functions, but it continues to have financial problems, as the Treasurer's Report in this HANDBOOK has pointed out. Advertising revenues have risen appreciably from the low point that occurred during the summer of 1961, but they haven't yet begun to approach the summit that they reached 18 months ago. According to the postal laws and regulations, publications such as ours are entitled to preferential mailing rates only if they fail to show a profit, and thus the JOURNAL should be expected to require a subsidy at least equivalent to its announced annual subscription price multiplied by the number of IMS members.

As has been pointed out before, physicians can help in selling ads to pharmaceutical manufacturers and the firms that market other products that doctors use. W. B. Saunders Company, one of the principal publishers of medical books, is one of the firms on which the editors of the JOURNAL would like doctors to concentrate their efforts. Saunders' advertising agency contracted recently for another year of state medical journal advertising, but did so rather hesitantly, saying that there had been no indication that previous ads had sold any books. Doctors can provide such evidence by making use of the order coupon that appears regularly in a lower corner of each Saunders' full-page ad. As for the drug houses, doctors can help by telling the detail men, at every opportunity, that they *don't* like direct-mail pieces and that they prefer to see sales pitches in the JOURNAL (if at all).

The editors availed themselves of the change in the name of the society in ordering new designs for the front cover and some other headings in the magazine. Those had to be changed. As regards the use of color on "reading" pages, as distinguished from color in ads, which is billed to the advertiser on a cost-plus basis, the editors have been pinching pennies.

The other problem referred to in the report written for the 1961 HANDBOOK concerned a shortage of scientific manuscripts. That difficulty has eased considerably. The 1962 Annual Meeting promises to provide more papers than its predecessors have done, during the past two or three years, and the faculty of the S.U.I. College of Medicine, the secretaries or program directors of some of the larger county medical societies and specialty groups, and the Iowa Chapter of the Academy of General Practice have been extremely helpful in providing excellent materials either as manuscripts or as tape recordings. The editors appreciate their fine cooperation.

(This concludes the material that was published in the HANDBOOK FOR THE HOUSE OF DELEGATES.)

The Speaker explained procedures to be followed by the delegates in carrying out the business of the House of Delegates. He referred to the material contained in the delegates' packets, and announced the reference committees that would serve and the names of physicians appointed to them.

As the next order of business, Dr. Ernest B. Howard, assistant executive vice-president of the American Medical Association, addressed the House of Delegates. Dr. Howard reported on recent developments in connection with King-Anderson legislation, on the conference between officials of the American Medical Association and President John F. Kennedy, and on his personal reaction to developments in New Jersey, where some physicians have indicated an unwillingness to participate in any way in the implementation of the King-Anderson Bill, if it should be enacted by the Congress.

Presentation of supplemental reports was the next

order of business. These reports were received and referred to proper reference committees for study and report.

Supplemental Reports

BOARD OF TRUSTEES

(Referred to the Reference Committee on Reports of Officers. For final action by the House of Delegates, see the report of the reference committee.)

The Iowa Medical Society is a vibrant organization that is constantly increasing its responsibility to its members and to the public in all matters of health. The best evidence of this fact is the prestige the IMS enjoys with other state and national organizations.

Because it is strong, the Society is recognized as a leader, and this assumption of leadership carries with it responsibility, sacrifice and hard work.

It is the judgment of your Board of Trustees that these leadership prerequisites have been met by the officers, committee members and staff during the past year.

The eight physicians who comprise the Board of Trustees have been dependable and prompt in attending meetings. Since the Annual Meeting a year ago, the Board has met on fifteen occasions and to the physicians involved, these meetings have meant at least fifteen full days of absence from practice.

The Executive Council members have likewise served faithfully. The twenty-five physicians who serve on this interim policy-making body met in Des Moines on four occasions, and the Judicial Council which, like the Board of Trustees is a part of the Executive Council, has held five meetings.

Approximately 150 official meetings of standing and special committees have been held since April, 1961—approximately three a week. Some committees have been busier than others, and some haven't met at all —but have been on a stand-by basis prepared to consider any problem that might fall within their respective realms of responsibility.

We want to comment on the work of some of the committees so as to emphasize the importance of their projects and to point up the service that is being donated to the Society by many of its members.

The Program Committee has met as often as circumstances have required, either in formal session or by telephone conference. The fruits of its labor will be evident as physicians attend the lectures during the next two and a half days. In an effort to provoke interest and increase attendance at this year's meeting, the Committee developed a special tabloid newspaper to highlight the scientific program and special events.

The Committee on Legislation and the special King-Anderson Planning Committee have been extremely busy in dealing with all of the problems in connection with national legislative proposals for providing health care to the aged. Obviously, efforts to inform the public—and the profession—on the disadvantages of King-Anderson type legislation constitute the Number One project of the Society, and have encroached greatly on the time of your officers, committee personnel, county King-Anderson chairmen, and staff. In addition to developing our own programs, we have also cooperated with the AMA in implementing many projects initiated at the national level. Hundreds of thousands of pamphlets and articles on this subject have been provided to physicians for distribution to the public, and IMS speakers have addressed innumerable professional and lay organizations throughout the state. We feel the activity that has been carried on by the IMS in promoting Kerr-Mills and opposing King-Anderson is comparable to any in the country.

The Grievance Committee continues to be one of the Society's most dependable instrumentalities. Serving on this committee has meant the sacrifice of a Sunday a month, from September until May, for each of the eleven men who comprise it.

The Committee on Rural Health assumed a major role in planning the AMA Regional Rural Health Conference at which the IMS will be host at the Savery Hotel in Des Moines, next Friday and Saturday, May 18 and 19.

Perhaps the busiest and hardest working committee has been the Relative Value Study Committee. The physicians who compose that group have reported to the Society office many times as early as 10:00 A.M., and as a general rule, most of them have still been on the premises at 6:00 P.M. The work of this committee is apparent when one scans the proposed relative value index.

The Committee on Automotive Safety is cooperating with the Cornell University Automotive Crash Injury Research Program and groups here in Iowa, in an important survey to determine causes of injuries and deaths to occupants of late-model passenger cars involved in accidents.

The efforts of the Osteopathic Committee will be very plainly brought to your attention when the Chairman presents his Supplemental Report. The officers of the Society who have had an opportunity to observe the work of this committee are aware that the members have considered MD-DO relations impersonally, with the public interest uppermost in their minds. Regardless of the action that is taken by the House of Delegates on the Osteopathic Committee's report, the members deserve its commendation.

The successful implementation of the Medical Self-Help Training Program throughout Iowa has been—and will be—an important activity of the IMS Committee on National Emergency Medical Service. The committee has developed an excellent exhibit on all phases of emergency medical care for display at this meeting, and I urge you all to take time to see it.

As usual, the group referred to as "Doctor Wendell Downing's Committee," the one that evaluates Blue Shield proposals, has done its chores. As you know, it was this committee that was called into action almost immediately when the National Blue Shield and AMA announced the development of a special program for the aged.

A major interest of the Society is Blue Shield, and several committees work with it on various projects and problems. The officers, committees and staff members of the Society are always willing and anxious to cooperate with Blue Shield in its endeavors, realizing that the future of Blue Shield is as important to the Medical Society as it is to Blue Shield itself.

The Board feels that perhaps there are areas where the Medical Society could enhance its assistance to Blue Shield—specifically in public relations, physicians relations, and sales. In this respect, the Board of Trustees desires to invite appropriate officials of Blue Shield to meet with it periodically to discuss activities in the aforementioned areas. This proposal is offered in the hope that a mechanism can be created which will

enable the IMS officers to keep currently informed about Blue Shield, and to utilize the facilities of the IMS to the fullest extent possible in the best interest of Blue Shield, the Medical Society, and the public.

A resolution emanating from this House of Delegates, which recommended a national public information program to promote the private system of medical care, received considerable attention during the past year at the regional and national level. Officials of the IMS apprised representatives of the six states in the North Central Conference of the intent of this resolution at the Annual Meeting of the Conference last fall. This was followed by its official introduction in Denver, where passage of the resolution was urged by the delegates and other officials of the IMS.

The Iowa resolution was not adopted, nor was it rejected by the AMA House of Delegates. It was referred to a special committee of the House for study and report. In February, on invitation of the AMA Committee on Communications, a small delegation from the IMS met with it to discuss in specific terms the intent of the resolution. The IMS representatives were most cordially received, and ample time was provided for a full discussion of the Iowa proposal. We were not informed of the AMA committee's plans until recently, and were disappointed to learn that it will not recommend that the AMA House of Delegates adopt the Iowa resolution. However, after our lengthy discussion with these AMA officials, it is not too difficult for us to understand the position they have taken. The committee feels, and we agree to some extent, that it might be difficult to obtain sufficient funds from voluntary contributions on a continuing basis to finance the proposed program. The IMS has been complimented for the leadership it displayed in promoting this public information campaign, and we feel our efforts in this endeavor have not been completely wasted.

It is only appropriate to mention that this urging of the AMA to implement a national education program was repeatedly given oxygen and kept alive by the Society's Public Relations Committee. That committee continues to assume responsibility for many varied PR projects, including the Hawkeye Science Fair, radio-press-television liaison, the Senior Medical Student Conference, the distribution of special informational literature, and so forth. A special project of the committee has been the development of brief interviews concerning IMS activities and objectives for presentation over WMT-TV in Cedar Rapids. The interviews are presented during the "Medicine in the Sixties" series of programs, which are telecast monthly, and several Society committeemen and officers have participated. The Iowa Electric Light and Power Co., which sponsors the program, has relinquished its commercial time to the IMS for this purpose, and we are deeply grateful to that firm, as well as to the station, for this wonderful opportunity to present a "positive" picture of organized medicine.

The Iowa Medical Society is an active participant in the Iowa Interprofessional Association and should continue in that role.

The foregoing list of committees, as well as the activities that have been mentioned, constitute no more than a highlighting, for there have been many more groups at work on projects equally important to the physician and to the public interest. In addition, literally hundreds of informal conferences with individual committee members, officers and other groups have been held. This dissertation on Society activities could continue *ad infinitum*, so we'll end it here, asking you to refer to your HANDBOOK and to rely on the supplemental reports for more specific and detailed information.

As you know, this report is from the Board of Trustees, and the president is a member of the group. However, he is unaware of the inclusion of this next section—since it concerns him.

During the fall and spring months, Dr. Otto Glesne personally visited 45 of the 99 county medical societies. Imagine this effort on top of carrying on an extremely active OB practice, and his other responsibilities as president! Dr. Glesne did, in fact, take the IMS to the grass roots, and he brought the views of individual doctors back to the headquarters of the IMS. He also became an excellent "weather indicator" while he was making these trips, for we could count on rain, snow, ice or fog whenever he was on the road!

It would seem appropriate to ask this House of Delegates to give Dr. Glesne a standing ovation. We believe the work of Dr. Glesne, coupled with many other Society activities, has established excellent rapport between the IMS and its members. Where the relationship hasn't shown marked improvement, at least the communication lines have been cleared.

The Board also wishes to pay tribute to the headquarters staff of the IMS. Since becoming active in the affairs of organized medicine, it has been my privilege to visit the offices of other state medical societies, as well as those of many professional organizations in the state. My belief has been confirmed that the IMS has one of the most effective staffs of any organization in the country. The outstanding characteristics of our employees are dedication to duty, loyalty to the profession, and competence in performing their assignments. The high caliber of IMS personnel is recognized by other state and national medical societies—and especially by our parent organization, the AMA.

Mr. Don Taylor, who provides much of the leadership in the business affairs of our Society, justly deserves the recognition he received when he was elected president of the National Association of Medical Society Executives—for he is, indeed, one of the top executives in the country.

As a Board of Trustees, one of our most important responsibilities is overseeing the Society's finances—and I'll conclude this report with a financial review.

In April, 1961, the House of Delegates authorized an increase in dues from $80 to $90, and requested that the IMS provide a summary of its finances to all members. In November, 1961, a financial statement reporting on the fiscal affairs of the IMS for the period January 1, 1961, to October 31, 1961, was distributed to the membership, and we hope each member has taken the time to review that material.

The report of the treasurer which appears in the HANDBOOK, outlines the economic position of the Society as of January 1, 1962. As a matter of necessity, in the type of work carried on by any trade or professional association, a sizable portion of the budget must be devoted to staff compensation. It is significant that according to a national average, most associations or societies allocate at least 50 per cent of their income to salaries. In the IMS, it is approximately 42 per cent.

Other major expense items for 1961 included: Phy-

sician meeting expense—county, state, regional, national and committee meetings; special legislative and public relations projects, including expense in connection with the King-Anderson campaign; Relative Value Study; Hawkeye Science Fair; office equipment; and taxes.

As stated in the Report of the Treasurer, the Society in 1961 experienced a deficit for the first time since 1955.

Although expenses for maintaining an excellent JOURNAL have not risen, the revenue for advertising decreased by almost $15,000 in 1961. Because of this fact, the Board of Trustees, in approving the 1962 budget, set up a budget figure of $3.00 per Society member to support the JOURNAL. This JOURNAL charge is deducted from present dues. In 1962, the JOURNAL expenses have continued to exceed income almost in the same proportion as in 1961. It should be noted that in the past, there has been no charge against the IMS membership dues for the JOURNAL. Most other medical societies are having the same experience with their JOURNAL as we are. For example, the Indiana State Medical Association has increased its annual subscription rate to its members from $3.00 to $8.00.

Over all, the expenses for operating the Society for the first four months of 1962 are well within the budget, and the dues increase effective January 1, 1962, should prevent a deficit this year.

Society reserves are at a reasonable level and consist of savings, corporation stock, government bonds, and provision for building fund. The total reserves approximate $100,000 or funds to underwrite seven months of operation.

I want to comment about the building fund. For some time, the Society has been setting aside building depreciation funds in a separate account to accumulate for the purpose of remodeling and enlarging the Society's present quarters—or, for the construction of a new building, should this seem desirable. For at least three years, the Board of Trustees has been on the look-out for a tract of land that might be desirable as the building site for a new home for the IMS. This has received serious attention in the last few months, since a parcel of land may become available that seems ideal in terms of cost, location, etc.

The present building was completed in 1952, and because of rapid growth, the building has undergone at least two major remodelings. Those of you who have not taken occasion to visit the headquarters office of the Medical Society should do so, because we're sure you will agree that considerable additional space is needed to house the Society.

The Board has conferred with a Des Moines architect to determine whether or not it would be advisable to attempt another remodeling, and he discourages it. If this were done, it would mean attaching a new structure to the old one, which would be a costly procedure and would not increase to any appreciable degree the value of the present property. Furthermore, city zoning would require the acquisition of additional parking space if we were to take the land that is now used for parking for the office expansion. We often hear complaints from members that we don't have adequate parking space at present.

If a suitable building site becomes available, we respectfully request permission of the House of Delegates to develop final plans for a new Society office for submission to the Executive Council for approval. We believe we can find way and means to finance a new building without increasing dues, but if it becomes apparent we cannot, before proceeding you may be sure that we will bring our proposal to the House of Delegates for its approval or rejection.

The Board of Trustees is extremely grateful to this House of Delegates and the members generally for the support that has been provided. In spite of the increase in dues in 1962, we had an increase in overall membership from 2,461 to 2,475.

We are hopeful the House of Delegates will approve the recommendations that we have presented, which will permit the necessary flexibility that any board of trustees or board of directors must have if progress is to continue.

Thank you.

Respectfully submitted,
S. P. LEINBACH, M.D., *Chairman*
O. D. WOLFE, M.D.
C. W. SEIBERT, M.D.
O. N. GLESNE, M.D.
G. H. SCANLON, M.D.
L. F. HILL, M.D.
R. F. BIRGE, M.D.
H. J. SMITH, M.D.

At the conclusion of the presentation of the Supplemental Report of the Board of Trustees, Dr. S. P. Leinbach, chairman, introduced Dr. C. W. Seibert, a trustee and chairman of the King-Anderson Planning Committee, to present a special report on King-Anderson planning, which was provided for information only, and it follows:

SPECIAL REPORT ON KING-ANDERSON PLANNING

As most of you probably know, President Kennedy will address a Madison Square Garden Rally of over 20,000 elder citizens on May 20, in an all-out effort to gain support for the administration's King-Anderson Bill. The President's address will be carried via closed circuit television to 28 other cities where similar rallies will be held, and it will also be telecast on a delayed schedule over the three networks late Sunday afternoon and evening.

On Monday evening, May 21, the AMA will telecast a program over the networks to present medicine's story in regard to this legislation.

We received information on President Kennedy's plans the latter part of March, and began immediately to outline an educational program to combat the administration's propaganda campaign.

First, a report on the President's program was mailed to all members of the Executive Council and county King-Anderson chairmen.

Then, in cooperation with a local advertising agency, a campaign program for the Iowa Medical Society was developed and presented to the Board of Trustees and Executive Council at their meetings on April 19. The Trustees authorized an expenditure of funds to expose the administration's efforts to force enactment of the King-Anderson Bill and to explain to the people of Iowa why physicians feel Kerr-Mills is the best program for them.

Following approval of our suggested campaign, the following has been accomplished:

1. This advertisement, which had been approved by the Board of Trustees, was duplicated on proof sheets and mailed on May 2 to the 40 county medical societies

in Iowa located in areas which have a daily newspaper. The ad accurately describes the advantages of the Kerr-Mills Law, in contrast to the disadvantages of the King-Anderson Bill, and calls attention to both the Kennedy and AMA telecasts. Minor modifications have been made, as necessary. A key statement is at the conclusion of the ad, and reads as follows: "If you are one of Iowa's senior citizens and feel you are not receiving adequate medical care—or if you know of such a person—we would like to be informed."

Since many county societies have been and are publishing various advertisements regarding King-Anderson legislation and public service projects, it was felt that this particular campaign should be concentrated in the daily newspapers, which would provide maximum readership saturation. However, copies of the ad and explanatory letters were mailed to all county King-Anderson chairmen, and mats will be made available to any society which would like to utilize weekly newspapers.

2. Also on May 2, letters were mailed to the editors of the 40 daily newspapers in the state, announcing the Kennedy and AMA programs. Background information was enclosed with the letter.

3. On May 1, a meeting was held with representatives of the Polk County Medical Society, Iowa Nursing Home Association, Iowa Hospital Association, Iowa Veterinary Medical Association, Iowa Dental Association, and Iowa Pharmaceutical Association to provide information on the Society's plans, and in the hope that these organizations would develop similar programs.

4. We are happy to report that the IMS will publish this 7 column-full page ad in the Des Moines REGISTER on Sunday, May 20 and, to date, 27 county medical societies have purchased space in daily newspapers and, in some instances, weekly papers as well.

The IMS will also buy television time on various stations in Iowa which will carry the Kennedy and/or AMA programs, to present 10- or 20-second spot announcements urging the viewers to watch the AMA program and consider both sides of the question.

5. In addition, sometime during the week following the national telecasts, the Iowa Pharmaceutical Association will run a quarter-page ad in the Des Moines REGISTER, as well as the Des Moines TRIBUNE. It is also reproducing the ad on posters, which will be mailed to 900 drug stores in the state for display purposes.

6. The Iowa Nursing Home Association has advised that although it will not publish the ad in the newspaper, poster reproductions will be made and distributed to all nursing homes in the state. The president of the Association will also release a statement to the press regarding opposition to the King-Anderson Bill.

7. The Iowa Veterinary Medical Association has prepared a special bulletin to all of its members to explain King-Anderson and Kerr-Mills, and to request local veterinarians to cooperate with M.D.'s in carrying out this campaign.

In addition to what has already been accomplished, we plan to follow-up the television programs and newspaper advertisements with a general press conference concerning King-Anderson and Kerr-Mills, and a report to the press on replies received in answer to the request for information about people not receiving adequate medical care. We shall also attempt to obtain positive statements from state officials and Iowa Congressmen and Senators.

In concluding this report, we call your attention to a special booth which has been set up across from the Woman's Auxiliary Art Exhibit, where physicians and guests will be able to send telegrams regarding health care legislation to their senators and representatives in Washington—for only 83 cents. We hope you will stop by. At the meeting of the Iowa Dental Association last week, a similar booth was set up, and hundreds of telegrams were transmitted during the meeting.

On behalf of the American Medical Association Educational Research Foundation, the chairman of the Board of Trustees of the Iowa Medical Society, Dr. S. P. Leinbach, presented a check in the amount of $12,922.40, to Dr. Norman B. Nelson, dean of the College of Medicine, State University of Iowa.

Dr. George H. Scanlon, chairman of the IMS Educational Loan Fund, summarized the financial status of the fund as follows:

Total loans entered into since the inception of the program—$215,038.42

Loans repaid—$64,587.06

Loans outstanding as of May 12, 1962—$159,303.42

146 students have participated in the program, 40 have repaid their loans in full, and there are 106 loans outstanding.

Dr. Scanlon introduced the two senior medical students, Mr. Carleton Thornwall, and Mr. Harry Mahannah, who represented the S.U.I. College of Medicine at the Annual Meeting as guests of the Iowa Medical Society.

Reports of Standing Committees

NOMINATING COMMITTEE

The following slate will be submitted to the House of Delegates today. Additional nominations will be accepted from the floor, after which the Speaker of the House will declare nominations closed.

President-Elect	C. O. Adams, M.D., Mason City
	C. V. Edwards, Sr., M.D., Council Bluffs
Vice-President	G. S. Atkinson, M.D., Oskaloosa
	R. W. Boulden, M.D., Lenox
	G. E. McFarland, Jr., M.D., Ames
Trustee	L. F. Hill, M.D., Des Moines
	S. P. Leinbach, M.D., Belmond
Speaker of the House	L. J. Halpin, M.D., Cedar Rapids
	C. P. Hawkins, M.D., Clarion
Vice-Speaker of the House	P. M. Kersten, M.D., Fort Dodge
	F. E. Thornton, M.D., Des Moines
	J. M. Tierney, M.D., Carroll
AMA Delegate (2)	J. M. Rhodes, M.D., Pocahontas
	H. J. Smith, M.D., Des Moines
	C. H. Stark, M.D., Cedar Rapids
	L. W. Swanson, M.D., Mason City
Councilor—Second District	J. F. Paulson, M.D., Mason City
Councilor—Sixth District	J. W. Ferguson, M.D., Newton
Councilor—Seventh District	C. E. Radcliffe, M.D., Iowa City
Councilor—Ninth District	K. E. Lister, M.D., Ottumwa
Councilor—Tenth District	E. E. Gamet, M.D., Lamoni
Councilor—Eleventh District	W. G. Kuehn, M.D., Clarinda

Respectfully submitted,

R. M. DAHLQUIST, M.D., District 1
J. W. LANNON, M.D., District 2
D. F. RODAWIG, SR., M.D., District 3
J. W. GAUGER, M.D., District 4
R. B. STICKLER, M.D., District 5
C. D. ELLYSON, M.D., District 6
J. J. REDMOND, M.D., District 7
J. F. BISHOP, M.D., District 8
F. O. W. VOIGT, M.D., District 9
R. W. BOULDEN, M.D., District 10
M. L. SCHEFFEL, M.D., District 11

On recommendation of the chairman of the Nominating Committee, and with the advice of the Iowa Medical Society's legal counsel, a motion was approved by the House of Delegates to the effect that in the listing of candidates for the office of delegate to the AMA, that these candidates should be paired as follows: the first pairing, J. M. Rhodes, M.D., and L. W. Swanson, M.D.; the other pairing, H. J. Smith, M.D., and C. H. Stark, M.D.

Following his request for and the presentation of nominating speeches, which were to be limited to one minute each, the Speaker asked for nominations from the floor, and there being none, he declared the nominations closed.

COMMITTEE ON LEGISLATION

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

The Committee on Legislation has devoted its time this past year to defeating the Administration's proposal for financing health care of the aged through the Social Security System (King-Anderson Bill). All other legislative matters have been evaluated in relation to and with priority to King-Anderson type legislation.

On April 9, 1962, representatives of the Committee on Legislation and officers of the Iowa Medical Society went to Washington, D. C., to meet with the Iowa Congressional Delegation. This annual trip has proved extremely valuable to the Iowa Medical Society and, in turn, we feel it is appreciated and looked forward to by Iowa Congressmen.

It was apparent, in our visit with the American Medical Association's Washington representatives, that the King-Anderson Bill and the health care for the aged under Social Security issue are of prime importance to the medical profession, and all other national legislation, such as the Keogh Bill, of necessity is secondary.

After visiting with AMA Washington representatives and Iowa Congressmen, it is our opinion that keeping the King-Anderson Bill in the House Ways and Means Committee is our major hope of defeating this legislation in the 87th Congress. This highly explosive political issue will be difficult to oppose in an election year. We gained the impression, however, that a majority of House members would be willing to see this issue remain in the House Ways and Means Committee so they would not have to be recorded as either in favor of or opposed to health care for the aged. In line with this reasoning, the Committee on Legislation is using all means at its disposal to persuade Iowa Congressmen to use their influence in seeing that the King-Anderson Bill is kept in committee.

In relation to King-Anderson legislation, another bill which would provide health care for the aged in a different manner has been introduced by Representative Bow of Ohio and is worthy of comment. The Bow Bill would provide a tax credit, up to a maximum of $125, for individuals purchasing health insurance which meets the criteria set forth in the bill. Superficially, the Bow Bill has great appeal because it eliminates Social Security financing and avoids most of the bureaucratic controls inherent in the Forand and King-Anderson approach. On the other hand, it must be recognized that the Bow Bill is a complete departure from the position of organized medicine that governmental health care should be provided only to those who qualify on the basis of need and that neither governmental care nor subsidy should be made available to all persons regardless of need. Also, since this proposal has been introduced by a Republican and endorsed by several other members of that political party, any approval by the medical profession would split the health care issue into a completely partisan legislative issue and stalwarts such as Congressman Wilbur Mills, chairman of the House Ways and Means Committee, would find it difficult to continue their stated opposition to the King-Anderson Bill and the principle of providing health care to senior citizens only on proven need.

We should like to comment that there exists in Washington much panic on this issue; however, during the last session of the Iowa Legislature, it was apparent that most individuals and organizations were extremely apathetic regarding health care for senior citizens in Iowa. It would be well if some of the panic in Washington could be transferred to Iowa and some of the apathy in Iowa transferred to Washington so a more reasonable approach, based on the merits, could be given to the King-Anderson Bill and the implementation of Kerr-Mills in Iowa.

The American Medical Association's Washington representatives spoke highly of the Iowa Congressional Delegation in Washington. Your Committee is aware that Iowa Congressional representatives now hold many positions of prestige and influence in Washington and are consulted, listened to and held in high esteem by members of both Houses. We would suggest that when writing to your Congressmen and when requesting that your friends and neighbors write, you stress the need for keeping this Bill in Committee and ask that Congressmen use their influence to see that this is accomplished.

The Committee on Legislation will continue to watch closely this proposed legislation and will make every effort to keep the members of the Iowa Medical Society informed on its status.

STATE LEGISLATION

The Committee has, during the past year, been preparing for the 1963 session of the Iowa General Assembly. Many important state legislative proposals will be up for consideration and we will briefly touch on the more significant ones:

Kerr-Mills Implementation—The need for a Kerr-Mills appropriation to implement the already existing law will be greatly affected by the outcome at the national level on the health care for the aged question. The Committee will be guided by the actions of the policy-making bodies of the IMS as the discussion and action on this problem progresses.

Chiropractic and Osteopathic—The committees of the Medical Society responsible for these two areas are both making policy recommendations to this House of Delegates. There will continue to be much activity surrounding medicine's relationships to these two groups. The Osteopathic Committee has ascertained that there are approximately 16 states which have a composite state board of examiners which serves both the medical and osteopathic professions. The American Medical Association is on record as favoring such a move. In at least two states, the composite board also

licenses chiropractors. The Legislative Committee proposes to explore the advantages and disadvantages of legislation which would create a composite board of examiners in Iowa. Your Committee proposes to consider recommendations from the Chiropractic Committee, the Osteopathic Committee, and the State Board of Medical Examiners. It will then submit its own recommendations to the Executive Council of the Iowa Medical Society and will of course be governed by the final actions taken by that body.

Podiatry—During the 1961 session of the Iowa General Assembly, the Iowa Podiatry Society introduced legislation which would have included podiatrists under the Blue Shield Enabling Act. The legislation was not acted upon. A special committee of the IMS has been meeting with representatives of the Iowa Podiatry Society to gain information regarding the practice of podiatry and will be reporting its recommendations to the House of Delegates. Regardless of the action of the House, it is entirely possible that a bill calling for inclusion of podiatry services in Blue Shield will be introduced in the next Iowa General Assembly. Your Committee will be prepared to report a recommendation on this subject if deemed necessary.

Nursing—The Committee is aware that the Iowa Nurses Association desires to change its present practice act from one of registration to one of licensing and has drafted proposed legislation to attain this goal. The IMS has not been asked to comment but will endeavor to give suggestions and guidance if so requested.

Confidentiality of Medical Studies—Seven states have passed laws protecting the confidential nature of medical studies. The AMA has prepared a Model Act on the subject, entitled "Scientific Study Committee Act." In general, these statutes provide: (1) all information used in the course of medical study shall be strictly confidential; (2) such information shall not be admissable in evidence in court; and (3) the furnishing of such information shall not subject any person, hospital or research group to damages. Such legislation can be broad enough to include the records of hospital service committees, such as tissue records and infection committees, and also committees reporting to the state department of health, county or state medical societies or the College of Medicine at the State University of Iowa on studies relating to such subjects as cancer, maternal mortality, and research. The Committee on Legislation recommends that the Iowa Medical Society sponsor legislation on this subject at the earliest feasible opportunity.

Tort Immunity for Emergency Care—California adopted a "Good Samaritan" law in 1959, and eight other states adopted similar legislation in 1961. Similar bills failed of enactment in fifteen states during 1961. These measures are designed to exempt a physician from civil liability for any negligent act or omissions arising out of rendering aid or medical care or treatment at the scene of an accident or emergency. The Committee wishes to explore this matter in more detail before recommending any course of action.

Radiation Control—The Committee on Legislation recognizes the importance of legislation which would help in seeing that proper use is made of ionizing radiation sources. A special committee of the Medical Society has studied this item during the past year to clarify the Society's position on this legislation. A report of the Committee on Radiation Control appears in the 1962 HANDBOOK for the House of Delegates. The Committee on Legislation concurs with the report of the Committee on Radiation Control and will be guided by its recommendations, if approved by the House of Delegates.

Professional Corporations—It is imperative that the House of Delegates establish broad policy with respect to the position of the IMS with regard to the Keogh Bill and proposed Iowa legislation authorizing the formation of "professional corporations." Some of the considerations surrounding this complex subject have been set forth in a memorandum prepared by legal counsel which is contained in the packet distributed to Delegates and which is incorporated into this report by reference.

In the event the House of Delegates does not disapprove the concept of Iowa legislation authorizing the establishment of professional corporations, your Committee recommends that the President of the IMS be authorized and directed to appoint a special subcommittee to work with the Committee on Legislation in working out the details of the Society's position with regard to such legislation.

MISCELLANEOUS MATTERS

Iowa County Medical Examiners—A large number of the county medical examiners have protested informal rulings which to date have subjected them to inclusion under the Iowa Public Employees Retirement System (IPERS) and under Federal Social Security.

A formal opinion has been requested of the Iowa Attorney General, and legal counsel for the IMS is hopeful this opinion will conclude that medical examiners are not subject to IPERS for the reason they are either "public officials" or "independent contractors" rather than "employees." In the event a favorable opinion is not obtained, the Committee on Legislation will explore the possibility of legislation which would exempt county medical examiners from IPERS as this could be accomplished by action of the State Legislature.

Investigation by the Legislative Committee has shown that inclusion under Federal Social Security does not depend on the fact that the medical examiner is either a "public official" or "independent contractor" rather than an "employee." It appears it would be necessary to request Congress to amend the Social Security law in order to exempt Iowa Medical Examiners. The Committee on Legislation recommends that no such action be taken at this time.

Iowa Physicians Political League—We trust all members of the House of Delegates are familiar with the Iowa Physicians Political League and have seen fit to support it in its stated purpose. Since this organization is separate and apart from the IMS, but is of interest to the medical profession, I would like to request that the chairman of IPPL, Dr. L. O. Ely of Des Moines, be granted the privilege of the floor and given an opportunity to report on the progress of the Iowa Physicians Political League.

LCM Breakfast—On Tuesday of this week, the Annual Legislative Contact Man Breakfast will be held at 7:30 a.m. in the Des Moines Room of the Hotel Savery. Edward R. Annis, M.D., chairman of the AMA Speakers Bureau, will be present to discuss the status of the King-Anderson Bill and related matters.

The program scheduled for the LCM breakfast is of such importance that the Committee on Legislation, for the first time, is not only inviting attendance by all members of the Iowa Medical Society but is urging

them to be present to meet with the legislative contact men.

* * *

The Committee on Legislation wishes to express its sincere appreciation to the county legislative contact men and other Iowa physicians who have greatly aided the Committee in carrying out its functions. Only through the support of the individual physician at the grass roots level can the legislative program of the Iowa Medical Society meet with success.

In conclusion, the Committee on Legislation recommends for the consideration of the House of Delegates the following resolution which will update and reiterate the Iowa Medical Society's position of opposition to financing health care of the aged through the Social Security System:

WHEREAS, the members of the Iowa Medical Society are in complete agreement with official actions taken by the policy-making bodies of our parent organization, the American Medical Association, opposing financing of health care for the aged or any other segment of society via the Social Security mechanism, and in support of the Kerr-Mills approach; and

WHEREAS, these measures would institute a system of compulsory health insurance and compel a total tax of at least 9 per cent of earned income in Social Security taxes in the years ahead; and

WHEREAS, passage of this legislation would lower the quality of health care, with remote and impersonal bureaucratic control replacing the confidence and closeness of the doctor-patient relationship; and

WHEREAS, it would lead to the decline, if not the end, of voluntary health insurance programs, replacing them with vast new bureaucratic task forces so centralized as to be unfamiliar with local, individual needs; and

WHEREAS, the Kerr-Mills Law already is capable of administering a program of medical aid for the aged sensibly designed to help those who need help, coupled with the medical profession's longstanding policy of providing competent medical care regardless of ability to pay, be it therefore

Resolved, that the members of the Iowa Medical Society affirm their opposition to H.R. 4222 and other present and future bills embodying the compulsory health insurance principle, and that the Iowa Senators and Representatives now in the Congress of the United States be and are hereby respectfully requested to employ every effort and persuasion to prevent the enactment of such legislation.

Respectfully submitted,
H. E. WICHERN, M.D., *Chairman*
M. O. LARSON, M.D.
J. E. KELSEY, M.D.
J. E. BLUMGREN, M.D.
R. L. WICKS, M.D.
V. W. PETERSEN, M.D.
C. N. HYATT, M.D.
E. C. LOWRY, M.D.
T. A. BURCHAM, JR., M.D.
H. G. ELLIS, M.D.

Dr. L. O. Ely, chairman of the Iowa Physicians Political League, was invited to present a brief report on the status of that organization's program. It was for informational purposes only, and was not referred to a reference committee.

SUBCOMMITTEE ON ADOPTIONS

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

This Committee's deliberations have centered on the subject of pre-placement investigations of prospective adoptive parents and the adoptive child.

It is recommended that the statute be changed to require prospective adoptive parents to file an intent to adopt a child with the court. This signals the court to order a preliminary investigation by an agency or qualified investigator before the child is placed in the home of the adoptive family. This procedure may in some cases require the child to be cared for in a foster or other home, but the investigation would be done as quickly as possible and still be accurate.

After the pre-placement investigation is approved, then the court can enter an order to allow a petition to be filed which allows the child to be placed in the home. Then a period of one year can pass while the home and child are further investigated, after which the final decree can be issued.

The Committee requests consideration of this report and action taken in order that the interprofessional adoption committee can present such a proposal to the next legislature.

RALPH L. WICKS, M.D., *Chairman*

NECROLOGY COMMITTEE

(The Speaker asked the members of the House of Delegates to rise during reading of the names of members of the IMS who had died during 1961. The list appears on page 452 of this issue of the JOURNAL.

ARTICLES OF INCORPORATION AND BY-LAWS

(Referred to the Reference Committee on Articles of Incorporation and By-Laws for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

At the first session of the House of Delegates in 1961, a special subcommittee of the Executive Council presented a report which concerned the origin and purpose of the ISMS-Blue Shield "Memorandum of Understanding." This occurred as a result of a resolution introduced to the House of Delegates by the Dubuque County Medical Society in 1960, which proposed "that the two Delegates-at-Large who represent Blue Shield on the ISMS Executive Council should be non-voting members of that Board since they are neither nominated nor chosen by all members of the Society or by those residing in a particular district."

As a part of the Executive Council subcommittee's report to the House of Delegates, it asked ISMS legal counsel to explain in detail the provisions of the ISMS "Memorandum of Understanding." This was accomplished, after which the Executive Council subcommittee presented the following recommendations to the House of Delegates:

"1. Those physicians who participated in negotiating the ISMS-Blue Shield 'Memorandum of Understanding' acted in good faith in an atmosphere of fairness and in the best interest of the parties involved.

"2. The agreement they consummated has provided a sound basis for the establishment of excellent ISMS-Blue Shield relations. It has afforded an opportunity for organized medicine in Iowa to have a choice in selecting the candidates to be considered for election to the Blue Shield Board of Directors.

"3. This inter-organizational liaison has contributed to the strengthening of Blue Shield and, within the limits of financial resources and sound prepayment practices, improvement in its coverage.

"4. There is no evidence to indicate that either party to this understanding has taken undue advantage of its provisions.

"5. Because of these factors, and in the interest of maintaining and improving ISMS-Blue Shield relations, the subcommittee believes it would be imprudent to attempt to alter the mechanism for the exchange of representatives between these cooperating bodies."

This report was then referred to the Reference Committee on Insurance and Medical Service. The Reference Committee recommended approval of four points, but deleted Point 5 of the Executive Council subcommittee's report, and substituted the following, which was also approved by the House of Delegates:

"5. That the Committee on Articles of Incorporation and By-Laws be instructed to develop such amendments as will permit the House of Delegates, instead of the Executive Council, to elect Delegates-at-Large to represent the Blue Shield Board in the House of Delegates and on the Executive Council."

With the assistance of legal counsel, the Committee on Articles of Incorporation and By-Laws, in session on April 3, 1962, drafted and approved the following amendment:

Resolved: That the By-Laws of the Iowa Medical Society as amended, be amended by striking therefrom the whole of Chapter XIII, and substituting in lieu thereof the following:

"CHAPTER XIII
LIAISON DELEGATES

No later than 15 days prior to the annual meeting, the Liaison Committee shall submit to the President nominations of two or more active or life members of this Society in good standing for the preceding five years for the positions of Liaison Delegates. This ticket shall be sent to all members of the Society no later than 10 days prior to the annual meeting. The names so submitted will appear on the lists of candidates for offices and on the printed ballot referred to in Sections 4 and 5 of Chapter IV. From the names so submitted the House of Delegates shall elect two Liaison Delegates to serve as members of the House of Delegates and of the Executive Council as provided in the Articles of Incorporation. Liaison Delegates shall assume office upon adjournment of the annual meeting at which they were elected and shall serve for a term of one year and until their successors shall have been elected. A vacancy in the position of Liaison Delegate shall be filled by the Executive Council from nominations submitted by the Liaison Committee, of one or more active or life members of this Society in good standing for the preceding five years."

The Committee has an additional amendment to the By-Laws which it wishes to propose, and will be presented at this time in order to dispose of By-Law considerations before asking the House of Delegates to consider the one amendment to the Articles that will be necessary for the Articles to conform to the amendment of Chapter XIII to the By-Laws involving the Liaison Delegates.

It was brought to the attention of the Committee on Articles of Incorporation and By-Laws, that in the existing By-Laws there isn't a provision for waiving the dues of American physicians who are serving as medical missionaries. Therefore, the Committee approved, and submits for your consideration, the following:

Resolved: That Section 2, Chapter VI, of the By-Laws of the Iowa Medical Society as amended, be and it hereby is amended by adding to the second sentence thereof, after the word "service" a comma (,) and inserting thereafter the following:
"and for American physicians located in foreign countries and engaged in medical missionary and similar educational and philanthropic labors,"
Be It Further Resolved: that the Chairman of the Board of Trustees and the Secretary of the Iowa Medical Society be and they hereby are authorized and directed to sign, acknowledge and publish the foregoing Amendments as the Seventh Amendments to the By-Laws of the Iowa Medical Society, as amended, and to do all other things required by law or otherwise to execute, complete, and place in lawful effect said Amendments.

The following proposed amendment to the Articles of Incorporation is technical only, and provides for the change in name of the Delegates-at-Large to Liaison Delegates.

Resolved: That the Amended and Substituted Articles of Incorporation of the Iowa Medical Society, as amended, be and hereby are amended by deleting from ARTICLE IV, Section 16, thereof, and ARTICLE VI, Section 1, the words "Delegates-at-Large" and wheresoever else such words may appear in said Amended and Substituted Articles of Incorporation of the Iowa Medical Society as amended, and substitute in lieu of such words the words "Liaison Delegates."
Be It Further Resolved: That the Chairman of the Board of Trustees and the Secretary of the Iowa Medical Society be and they hereby are authorized and directed to sign, acknowledge, record and publish the foregoing Amendments as the Seventh Amendments to the Amended and Substituted Articles of Incorporation of the Iowa Medical Society and to do all other things required by law to execute, complete and place in lawful effect said Amendments.

P. F. CHESNUT, M.D., *Chairman*
J. A. CAFFREY, M.D.
L. J. O'BRIEN, M.D.
E. G. KETTELKAMP, M.D.
R. A. DORNER, M.D.

SUBCOMMITTEE ON UTILIZATION OF THE SUBCOMMITTEE ON PREPAYMENT MEDICAL CARE

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

As reported in the HANDBOOK Report of the Subcommittee on Prepayment Medical Care, some time ago the Board of Trustees of the Iowa Medical Society received a suggestion from the Board of Directors of Hospital Service, Inc., of Iowa (Blue Cross), that a committee of the Society join with a committee of the Iowa Hospital Association to study the cost and use of hospital and in-hospital medical services. The Board of Trustees referred this proposal to the IMS Subcommittee on Prepayment Medical Care for consideration and report.

The recommendation to establish a joint committee was approved by the Subcommittee on Prepayment Medical Care and later, the Board of Trustees. The following individuals were appointed by the respective organizations:

Iowa Medical Society	*Iowa Hospital Association*
G. G. Young, M.D. Des Moines	Mr. B. M. Grahek, Chairman Assistant Administrator Mercy Hospital, Cedar Rapids
W. A. Castles, M.D. Dallas Center	Mr. Harris Feldick, Administrator Mitchell County Memorial Hospital, Osage
J. K. MacGregor, M.D. Mason City	Mr. Llovd W. Coe, Executive Director Iowa Hospital Association, Des Moines
W. K. Hicks, M.D. Sioux City	Mr. John Jackson, President Associated Hospital Service, Inc., Sioux City
T. D. Throckmorton, M.D. Des Moines	Mr. F. P. G. Lattner, President Hospital Service, Inc., of Iowa, Des Moines

A joint meeting of the IMS/IHA Committees was held on March 28, 1962, at which time the following program was outlined and agreed upon as a proposed pilot study for investigating the problem of utilization:

The problem of medical costs, hospital costs, and utilization was referred to the Subcommittee on Prepayment Medical Care for its consideration. The Subcommittee feels no intelligent evaluation of the problem is possible until the presence and degree of the problem is ascertained. The Subcommittee on Prepayment Medical Care recommends that the Iowa Medical Society and the Iowa Hospital Association combine in a joint venture to study hospital costs, medical costs and utilization. While various approaches are available, the Subcommittee feels that a study of this problem can best be carried out by evaluating actual practices in representative hospitals as selected by the two organizations. Perhaps cases chosen by a preferred random sampling from the records of these representative hospitals can be studied by an Iowa Hospital Association auditor for the hospital portion of the charges and a medical evaluation of the identical cases carried out either by a physician paid for his services or through a panel of physicians selected by the Iowa Medical Society. The Subcommittee feels that if a panel is chosen, not less than two doctors from an unassociated community or area should jointly carry out the medical portion of the study. The combined facts of the study are to be reported without identification to the Board of Trustees of the Iowa Medical Society and the Board of Trustees of the Iowa Hospital Association for their recommendations.

The representatives of the Iowa Hospital Association assured us that the above recommendation is in line with past policy of the IHA and would have the approval of that organization.

It is the recommendation of the joint committee that a pilot program, similar to the above outline, be approved by the House of Delegates and the joint committee be instructed to formulate an exact program to carry out the recommendation. It should be emphasized that such a pilot study will be a joint venture and the results of the study will be reported to the appropriate bodies of the two societies prior to any further action as to definite recommendations for any corrective measures to control utilization if such steps are indicated by the pilot study. Whether or not such a project becomes a continuing one will depend on what the proposed study reveals.

G. G. YOUNG, M.D., *Chairman*

SUBCOMMITTEE ON MEDICAL SERVICES TO THE INDIGENT

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

The HANDBOOK Report of the Subcommittee on Medical Services to the Indigent outlines the progress on the four directives that the 1961 House of Delegates gave to the Subcommittee.

Since the writing of the HANDBOOK Report, the Board of Social Welfare has reconsidered the Society's request to study the posssibility of appointing a fiscal agent to administer the Vendor Payment Program. The State Board of Social Welfare advised the IMS that a Committee has been appointed to study and investigate the advisability of employing a fiscal agent to handle the funds to be distributed under the Vendor Payment Program. The duties of the Committee, as outlined by the State Board, are as follows:

1. Assemble information from other states relative to their experience with the employment of a fiscal agent.
2. Conduct a hearing with a representative of each group presently under the Vendor Payment Plan of the Iowa Board of Social Welfare.
3. Make a thorough study with the Comptroller, Division of Audits and Accounts, to determine if any savings would be accomplished.
4. Make any additional surveys or observations deemed necessary in making a definite recommendation. Any such surveys requiring out of ordinary expenditures must have approval of the State Board.

The Iowa Medical Society has not as yet been asked to meet with the Committee of the State Board of Social Welfare to discuss the fiscal agent proposal.

During the fiscal year May 1, 1961, through April 30, 1962, approximately 1,600 Iowa physicians have submitted billings in the amount of $1,665,931.00 to the State Department of Social Welfare under the Vendor Payment Program. This represents approximately 31 per cent of the total amount that has been expended, to all vendors, by the State Department of Social Welfare during this same period.

The Subcommittee on Medical Services to the Indigent, as liaison to the State Department of Social Welfare, has during the past year received several inquiries from individual physicians and county medical societies raising questions regarding the administration of the Vendor Payment Program. The Subcommittee has, when appropriate, brought these matters to the attention of the State Board of Social Welfare for investigation. We urge all physicians to immediately bring to the attention of the Subcommittee matters regarding the Vendor Payment Program which, for one reason or another, cannot be resolved at the county level.

The Subcommittee wishes to assure the members of the Iowa Medical Society that it will continue to represent the interests of the medical profession in the Vendor Payment Program as administered by the State Department of Social Welfare.

ISAAC STERNHILL, M.D., *Chairman*

GRIEVANCE COMMITTEE

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

The Grievance Committee of the Iowa Medical Society investigated 20 cases of grievances against Iowa physicians during the past year. As predicted, *misunderstanding* again was awarded first prize as the major cause of grievances against Iowa physicians. The complaint of excessive or unrealistic fees was present in fully 80 per cent of cases. There were only four proven cases in which gross violation of medical ethics was involved.

The members of the Grievance Committee, after reviewing the cases of the past year, respectfully submit the following bits of information which may aid you in preventing a grievance being directed against you during 1962:

1. Do not afford yourself the luxury of harsh and angry words with your patient. He will find a grievance against you if he has to manufacture one.

2. Do not quibble over small unpaid accounts where there is definite evidence of patient dissatisfaction. It would be far better to mark it paid and chalk it up to experience. Recently an unpaid balance of $14 caused a distraught and irate housewife to file a formal complaint with the Grievance Committee. This action resulted in an exchange of 26 letters and three telephone calls. The Grievance Committee reconsidered this case in three consecutive monthly meetings. The net result was: a local credit bureau obtained $7 (if it was collected); the physician obtained $7 (if it was collected) and had the pleasure of writing the Grievance Committee three or four lengthy letters and paying for a long distance telephone call. The patient became actually hostile and has lost faith in all physicians (especially those on the Grievance Committee) and is threatening to seek legal advice. The Grievance Committee became completely exasperated. Was it worth it?

3. Keep an accurate set of medical records and patient account records. These records may be your only defense and salvation at a later date.

4. Inform your patient in advance as to the approximate charges for your services in connection with his particular illness. At the completion of your services, present him with an itemized statement. Here is usually where misunderstanding arises and a new grievance gets under way.

5. Make some effort to win your patient's confidence in you as a physician and to acquire even a small amount of affection for you. These patients rarely become involved in grievances against their physician. The horse and buggy doctor did it, why can't we?

6. Your patients are buying health and accident insurance protection in greater quantity than ever before. The benefits paid for various medical or surgical procedures are outlined in these policies. The average patient is led to believe that these insurance fee schedules constitute a fair and reasonable fee for the procedure. This may be true in certain Blue Shield contracts, but by and large there is no actual basis for this misconception. About 25 per cent of cases presented to the Grievance Committee alleging excessive fees stem from this misconception. We must make every effort to inform our patients regarding the true concept of insurance benefits and medical fees.

These are but a few of the tips that might be passed on to you, but time and space prevent a more comprehensive treatise on the subject of grievances at this time. Let us all make a sincere effort to reduce grievances during the current year and constantly strive for better physician-patient relations and friendly public relations for the mutual benefit of all.

D. O. MALAND, M.D., *Secretary*

Reports of Special Committees

COMMITTEE ON MENTAL HEALTH

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

For some years now a professional group known as the Joint Commission on Mental Health has evaluated the nation's mental health problem. Some months ago this Commission rendered its report to President Kennedy. A summary of this report, "Action for Mental Health," has been widely circulated and is purported to be a "Bible" for future progress in meeting mental health needs on a national level.

The Council on Mental Health of the American Medical Association seems to be in concurrence with the report and its emphasis on increased federal financial participation in underwriting the states' costs for medical care for the mentally ill and emotionally disturbed. In professional circles over the country the report and its recommendations have received widespread criticism. Your Committee on Mental Health has followed this development closely, and last February the chairman attended the American Medical Association's meeting for mental health representatives and heard many of these objections.

The Iowa Medical Society's Committee on Mental Health believes that in order to protect our patients and the profession against the distrustiveness attendant to the advance of forces of socialization, the accompanying resolution should be adopted.

RESOLUTION FROM THE COMMITTEE ON MENTAL HEALTH OF THE IOWA MEDICAL SOCIETY

WHEREAS, the Joint Commission on Mental Illness and Health in its statement "Action for Mental Health" clearly defined the myriad problems pertaining thereto, and

WHEREAS, the AMA Council on Mental Health in its proposed "Tentative Platform" based thereon has pointed out that the demands for better mental health services are the result of an increasing population, greater public awareness and present inadequacies, and

WHEREAS, if community needs are to be met effectively, close cooperation between physicians and laymen is imperative, and

WHEREAS, the "Tentative Platform" of the AMA Council on Mental Health recommends expanded Federal financing to accomplish its objectives, and

WHEREAS, increased Federal participation is excessively costly and will lead to third party intervention between patient and physician to the detriment of patients not only in psychiatry but ultimately in all phases of medicine, and

WHEREAS, the mental health needs of communities will be more economically and adequately met by local initiative, local control and local financing,

Therefore, Be It Resolved that the Iowa Medical Society House of Delegates oppose the proposed position of the AMA Council on Mental Health for continued expansion of Federal Government assistance to states as concerns medical care of the mentally ill and emotionally disturbed and that the delegates from the Iowa Medical Society to the AMA be instructed to express this opposing sentiment at the next annual meeting of the American Medical Association.

PAUL M. KERSTEN, M.D., *Chairman*

RELATIVE VALUE STUDY COMMITTEE

The Relative Value Study Committee's Supplemental Report consisted of the full text of the revised Relative Value Index. It is being published and will shortly be distributed to all members of the Society.

The report of the Reference Committee that considered the new index and reported its recommendations to the House of Delegates will be published under the heading Reference Committee Reports.

FRED STERNAGEL, M.D., *Chairman*
C. O. ADAMS, M.D.
R. B. STICKLER, M.D.
M. J. ROTKOW, M.D.
R. L. KNIPFER, M.D.
V. K. NAKASHIMA, M.D.
D. C. KOSER, M.D.
J. M. LAYTON, M.D.
R. L. ALBERTI, M.D.

OSTEOPATHIC COMMITTEE AND MD/DO LIAISON COMMITTEE

(Referred to the Judicial Council acting as a reference committee for study and recommendation. For final action by the House of Delegates, see the report of the Judicial Council acting as a reference committee.)

Your Committees at this time submit a report which will include concrete recommendations for action by the Iowa Medical Society. The recommendations may seem precipitous to some and radical to others, but we wish to assure the membership that they are not offered lightly, but only after many hours of study and consideration.

You will recall that two years ago, at the request of the Iowa Society of Osteopathic Physicians and Surgeons, an MD/DO Liaison Committee was established. This Committee has been very active, and from the beginning it was apparent that the M.D. members were concerned with two main questions:

1. The presence or absence of cultism in osteopathic education and practice, and

2. The quality of osteopathic graduate and postgraduate education.

The D.O. members of the joint committee were also mainly concerned with two problems:

1. The removal of the cultist label and barrier from their profession, and

2. Changing their practice act so they would be granted the license of Osteopathic Physician and Surgeon upon completion of four years osteopathic college, one year internship and successfully passing the examination of the State Board of Osteopathic Examiners. (At present the law requires two years postgraduate training to qualify for the Osteopathic *Physician and Surgeon* license, but requires only graduation from osteopathic college to qualify for the Osteopathic *Physician* license.)

It was agreed by both the M.D.'s and D.O.'s that the logical approach to the question of quality of osteopathic education and the presence or absence of cultism would be an evaluation of the Des Moines College of Osteopathic Medicine and Surgery by a competent, unbiased team of professional medical educators. Progress towards this end was abruptly halted in mid-1961 by the occurrence of three events. The first was the conversion of the osteopathic college in Los Angeles to a medical college. The second was the AMA House of Delegates action in June to permit state and individual determination of cultism. The third was the American Osteopathic Association's explosive reaction to the Los Angeles conversion and the AMA policy change, resulting in the AOA drawing an "iron curtain" around the remaining osteopathic colleges.

It was thought that the negotiations of the Liaison Committee might come to an end, but the osteopaths evidenced a desire to continue the discussions along the lines of removal of the cultist barrier and liberalizing their practice act. Your Committees, after much deliberation and study, came to the following decision: *If a significant portion of Iowa osteopaths holding the physician and surgeon license are, in fact, 1) limiting their practice to scientific medicine, and in addition are 2) ethical and 3) competent, then the Iowa Medical Society might consider reasonable legislative changes regarding osteopathic practice rights.* In other words, two phases exist: first, osteopaths should be given a chance to purge themselves of cultism; and, second, if this is accomplished, cooperative legislation sponsored by both groups may be considered.

Three methods of evaluation of the scientific, ethical and competency status of osteopaths were considered. The first might be called the "California Plan." In that state the osteopathic college converted to a medical college and all practicing osteopaths are being given the opportunity to acquire M.D. degrees from the newly approved medical college (which will graduate its first class as M.D.'s this June). The osteopathic profession is thus amalgamated into the medical profession due to the joint efforts and desires of both groups. As attractive as this idea may seem, there are obstacles which at present seem to preclude its application to the Iowa situation.

The second method of evaluation involves amending the by-laws of county societies and the Iowa Medical Society so that osteopaths could be admitted to some form of associate membership. As individual osteopaths made application, they would be subject to approval through the usual method of attaining society membership, which of course would include appraisal of scientific, ethical and competency status. This method has the advantage of using pre-existing and time-tested mechanisms, but your Committees feel that neither profession is ready for this step at present.

The third method of evaluation, and the one the majority of members of the Committees favors, is as follows:

1. Only those osteopaths holding the physician *and surgeon* license would be considered for evaluation by requesting this through their state organization to the MD/DO Liaison Committee. (At present there are approximately 125 osteopaths holding the P & S license in Iowa.)

2. These requests would be forwarded by the MD/DO Liaison Committee to the county medical society wherein the osteopath resides.

3. The county medical society would then evaluate the applicant on criteria of 1) whether he limits his practice to scientific medicine, 2) is ethical, and 3) is competent; the evaluation report to be returned to the MD/DO Liaison Committee in a reasonable time. This evaluation is the key to the working of the plan. Certainly it should be performed objectively and without prejudice. Direct information can often be obtained from hospital staff reports where osteopaths have staff privileges. When possible, discussion between medical society members and applicant osteopaths should be encouraged.

4. If the county medical society report is favorable, the MD/DO Liaison Committee will forward the evaluation to the Judicial Council of the Iowa Medical Society where, if approved, the applicant will be registered on the roll of osteopathic physicians and surgeons with whom it will not be considered unethical to associate professionally.

5. In cases where a county medical society cannot agree on an evaluation, or in which an osteopath wishes to appeal an unfavorable evaluation, the MD/DO Liaison Committee may act as an arbitration and appeal board with authority to hold informal

hearings at which all involved parties will be heard. The decision of the Committee is subject to review by the Judicial Council of the Iowa Medical Society. It is understood that if a county medical society is overruled in an unfavorable evaluation, the ultimate decision to associate professionally resides in the individual M.D. and D.O.

The above outlined evaluation program can be expected to do several things. It will give the osteopathic profession a chance to show its good faith in its desire to follow the same scientific, ethical and competency standards that the medical profession follows. It will give the M.D.'s an opportunity to become acquainted with D.O.'s "in the flesh" so to speak, and to test and decide if any serious underlying differences still exist.

Your Committees recommend the adoption and implementation of the third method of evaluation as outlined above.

If the first phase (or evaluation program) progresses satisfactorily, the second phase concerned with legislative changes in osteopathic practice rights should be considered. Your Committees have not had the time to study this problem in detail, and they would wish to consult the State Board of Medical Examiners, the IMS Legislative Committee, IMS Legal Counsel and others before offering specific recommendations. However, for guidelines, it may be said that there exists a firm feeling in the Committees favoring a Composite Board of Medical Examiners or a Composite Healing Arts Act, the provisions of which laws would encompass 1) strong enforcement provisions, and 2) authorization to approve and evaluate professional educational institutions and internships.

The Chairman wishes to thank the members of both Committees for the diligent work and long hours of effort in both Committee meetings and in "homework." Special attention should be made of the valuable services of Mr. Robert Throckmorton and staff secretary Eldon Huston.

Your Committees respectfully recommend that this report or pertinent portions thereof, if accepted by the House of Delegates, be communicated to each member of the Society, preferably by special letter.

Respectfully submitted,

J. M. RHODES, M.D., *Chairman*
J. J. SHURTS, M.D.
T. E. SHEA, M.D.
A. J. GANTZ, M.D.
A. M. COCHRANE, M.D.
W. A. SEIDLER, JR., M.D.
J. H. SPEARING, M.D.
D. L. YORK, M.D.
R. N. LARIMER, M.D.
H. E. WICHERN, M.D.

POLICY-EVALUATION COMMITTEE

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

The May issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY contains a report of the Policy-Evaluation Committee which includes its recommendations on the National Blue Shield Senior Citizens Program. The Iowa Medical Society's Policy-Evaluation Committee voted to "approve the National Blue Shield Senior Citizens Plan and recommend that the Iowa Medical Society's House of Delegates endorse such a plan." A reprint of the Committee Report is attached to this Supplemental Report.

On May 4, 1962, the Iowa Medical Society was informed that the following telegram had been sent to all Blue Shield Plan Directors by the National Association of Blue Shield Plans:

"THE EXECUTIVE COMMITTEE OF THE NATIONAL ASSOCIATION OF BLUE SHIELD PLANS MEETING IN CHICAGO ON MAY 3, 1962 HAS RECOMMENDED THAT THE METHOD OF RATING AND ADMINISTERING THE BLUE SHIELD NATIONAL SENIOR CITIZEN PROGRAM BE CHANGED TO LOCAL RATING AND LOCAL ADMINISTRATION. THIS DECISION WAS REACHED AFTER A THOROUGH STUDY OF THE PLAN RESPONSES TO OUR WIRE OF APRIL 16, 1962. 59 PLANS OUT OF THE 66 RESPONDING, FAVORED LOCAL ADMINISTRATION OVER NATIONAL ADMINISTRATION, AND THE MAJORITY INDICATED AN ABILITY TO IMPLEMENT THE PROGRAM MORE QUICKLY BY USING THE LOCAL APPROACH. OF THE 41 PLANS SUBMITTING LOCAL RATES, ALL BUT 7 WERE EQUAL TO OR LESS THAN THE NATIONAL RATE OF $3.20 and $6.10. THIS DECISION IS ALSO IN KEEPING WITH THE METHOD PROPOSED BY BLUE CROSS FOR THEIR VOLUNTARY OFFERING.

"IN VIEW OF THIS RECOMMENDATION, PLANS ARE URGENTLY REQUESTED TO ACKNOWLEDGE IMMEDIATELY:

"1. THEIR COMMITMENT TO PARTICIPATE IN THIS PROGRAM UNDER THE LOCAL RATING AND LOCAL ADMINISTRATION APPROACH; AND

"2. SUBMIT FIRM RATES FOR THE PROGRAM.

"SO THAT THERE BE NO MISUNDERSTANDING, THE BENEFITS OF THE PROGRAM AS WELL AS THE WAITING PERIODS, LIMITATIONS AND EXCEPTIONS, WILL BE THOSE OUTLINED IN THE CONTRACT ATTACHED TO POLICY LETTER P-62-4 DATED FEBRUARY 2, 1962. THE ONLY EXCEPTION IS THE SUBSTITUTION OF INTENSIVE CARE FOR PROLONGED DETENTION AS DESCRIBED IN OUR WIRE DATED APRIL 20, 1962.

"THE ABOVE BENEFITS WILL BE OFFERED ON A SERVICE BASIS WITH INCOME LEVELS OF $2,500 SINGLE, AND $4,000 FAMILY.

"AN UNDER INCOME SUBSCRIBER WHO QUALIFIES WILL BE ELIGIBLE FOR SERVICE BENEFITS IN ANY PARTICIPATING PLAN AREA.

"A UNIFORM ID CARD WILL BE USED, AND PAYMENT IN OUT-OF-STATE CASES WILL BE ON THE BASIS OF THE HOST PLAN'S SCHEDULE AND CHARGED BACK TO THE RESIDENT PLAN.

"THERE WILL BE NO, REPEAT, NO EQUALIZATION, POOLING, OR SURCHARGE.

"UNDERWRITING REGULATIONS DURING THE INITIAL ENROLLMENT PERIOD ANTICIPATE ACCEPTANCE OF APPLICATIONS WITHOUT MEDICAL UNDERWRITING.

"THE URGENCY OF THIS REQUEST IS APPARENT. TO BE EFFECTIVE, AN ANNOUNCEMENT OF THE DATE ON WHICH THE PROGRAM WILL BE MADE AVAILABLE TO THE SENIOR CITIZEN PUBLIC SHOULD BE MADE ON JUNE 1, 1962."

This telegram was referred to the Iowa Medical Society by Blue Shield and was the first notice the Society received regarding the proposed changes in the National Blue Shield Senior Citizen Program. The information contained in the above quoted telegram has not been presented to the Policy-Evaluation Committee since there was not ample time to give the proposed changes consideration prior to the May 13, meeting of the House of Delegates. Therefore, the Committee has no further recommendations regarding approval of the National Blue Shield Senior Citizens Program but presents the above information to enable the reference committee and the House of Delegates to consider it in determining final action on the National Blue Shield Senior Citizens Program.

The second item considered by the Policy-Evaluation Committee concerns a recommendation passed by the House of Delegates at the April, 1961, meeting, as follows:

"Consider development of a higher income level service contract which would provide appropriate and equitable fees when applied to the Iowa Unit Fee Index (Gray Book), to supplant the present Blue Chip contract. The Reference Committee understands that experience with the Blue Shield Blue Chip Program has shown such a plan to be extremely difficult to administer. This is the basis for this one of the Committee's recommendations."

At the March 21, and April 5, meetings of the Policy-Evaluation Committee, the above recommendation was considered and on April 5, the following action was taken:

"The Policy-Evaluation Committee recommends that the Blue Shield Board submit an EXHIBIT of the Blue Chip Program outlining its fiscal experience, as well as other necessary details of the program; this material to be presented to the 1962 House of Delegates meeting with the recommendation that the Blue Chip Program be referred back to the Policy-Evaluation Committee for reevaluation and recommendation during the coming year."

As of December 31, 1961, there were 13,686 Blue Chip contracts in effect; this represents an increase of 2,633 contracts over January 1, 1961. Approximately 35,000 persons are covered by Blue Chip contracts and this results in approximately 1,950 claims per month. Of this total, at least 25 of the claims are reviewed by the Blue Shield Claims Committee. With respect to fiscal experience, it is reported the Blue Chip Program is on a sound basis. Blue Shield states that the Blue Chip Program can continue an additional year with present rates.

The Policy-Evaluation Committee realizes Blue Shield did not have time to accomplish a complete analysis of experience with the Blue Chip Program. Therefore, the Committee requests the House of Delegates to approve its recommendation that the Blue Chip Program be re-referred to the Committee for detailed study.

The third item for consideration by the House concerns a request from the HEALTH INSURANCE COUNCIL, a Council made up of the major health insurance companies of the United States and submitted to the Committee by Mr. Kenneth Barrows of Des Moines, chairman for the Committee for Iowa.

The private commercial companies are attempting to provide voluntary coverage for the senior citizens of Iowa as well as the nation at reduced rates and they are informally asking that the doctors of Iowa bill the senior citizens with private insurance the same way he bills the senior citizen with Blue Shield Senior Program coverage, adjusting his fees according to the economic circumstances of the patient rather than the form of coverage. They do not ask the doctors to approve any particular form of coverage offered by the insurance industry, or to bind themselves to provide full service for the fees specified in any particular policy.

This request was received following the last meeting of the Policy-Evaluation Committee and therefore has not been brought to the Committee, so we recommend its consideration by the House of Delegates.

Respectfully submitted,
W. L. DOWNING, M.D., *Chairman*
O. N. GLESNE, M.D.
S. P. LEINBACH, M.D.
H. W. MATHIASEN, M.D.
H. J. SMITH, M.D.
J. K. MACGREGOR, M.D.
C. W. SEIBERT, M.D.
L. F. HILL, M.D.
W. K. HICKS, M.D.
G. M. WYATT, M.D.
G. H. SCANLON, M.D.

CHIROPRACTIC COMMITTEE

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

The preliminary report of the Chiropractic Committee printed in the HANDBOOK stated a more detailed report would be presented to the House of Delegates. Since the printing of the HANDBOOK, it has become obvious that the statements in the original report were based on sound observation and clear thinking. During the past few years the present committee has felt justified in recommending a policy of containment and watchful waiting, but chiropractic activities in the past eight or nine months force us to reconsider our previous thinking and conclusions. It is with serious judgment that this committee feels only two courses remain for the Iowa Medical Society:

1. Continuation of the present policy of containment. This modus operandi has been partially successful during the past years, but it has also permitted gradual encroachment by chiropractors and has encouraged them to seek wider recognition. To continue this attitude is not feasible for these reasons:

   a. It is predictable that merger of the two chiropractic groups (mixers and straights) is inevitable.

   b. Unification of chiropractors will result in a stronger organization with a louder voice demanding further recognition and a broadening of the sphere of their activities. Evidence as of now points toward this conclusion on state, national and even Canadian levels.

   c. Chiropractors are demanding and, in some instances, receiving recognition by insurance companies, labor unions and industrial commissions.

   d. Chiropractors are seeking hospital connections for the sole purpose of benefiting in insurance plans.

2. The other alternatives for the Iowa Medical Society is a policy of stronger controls, sponsoring this through improved legislation on a state level and encouraging similar procedures on a national scale. This is the course that the Chiropractic Committee recommends:

   a. Elevating the requirements for admission to chiropractic schools. Unless these standards are met, candidates applying for licensure should be rejected as in other branches of the healing arts.

   b. Revise the basic science examinations. Demand that these must be taken in toto rather than piecemeal or a section at a time. This is Iowa's weak-

est point in licensure for professional individuals.

c. Inspection of chiropractic schools should be mandatory. Graduates of schools which do not meet prescribed standards will be ineligible for examination and licensure and will not be recognized for reciprocity.

d. The American Medical Association is interested in this phase of quackery. We recommend that the IMS cooperate fully with the division of investigation of the AMA.

e. The legislative committee should seriously review the provisions of the basic science requirements and the examinations pertaining thereto.

f. The Chiropractic Committee has a plan which it would like to present to the Board of Trustees for consideration and recommends that the Board consider this plan in the near future.

g. The IMS should continue the Chiropractic Committee but perhaps with a different group of doctors who may have different ideas regarding this subject. The present members of the Committee have served diligently for several years and unanimously agree on the statements contained in this supplemental report.

Respectfully submitted,
R. A. BERGER, M.D., *Chairman*
J. R. KERSTEN, M.D.
B. F. HOWAR, M.D.
A. S. OWCA, M.D.
E. H. DESHAW, M.D.

PODIATRY COMMITTEE

(Referred to the Judicial Council acting as a reference committee for study and recommendation. For final action by the House of Delegates, see the report of the Judicial Council acting as a reference committee.)

The IMS Podiatry Committee met with representatives of the Iowa State Podiatry Society on two occasions since the 1961 IMS Annual Meeting. The meetings can be characterized generally as follows:

1. There was always a full complement of podiatrists present, which includes the following:

D. T. Mowbray, D.S.C., *Chairman*
203 First National Building
Waterloo, Iowa

Stewart E. Reed, D.S.C.
Kresge Building
Des Moines, Iowa

C. T. Howard, Jr., D.S.C.
Lippert Building
Boone, Iowa

M. D. Marr, D.S.C.
305-307 SGA Building
Cedar Rapids, Iowa

R. E. Holdeman, D.S.C.
SGA Building
Cedar Rapids, Iowa

2. The podiatrists were, to say the least, direct in their requests.

3. The meetings were friendly, lengthy, and mildly rewarding.

The approach of the IMS Committee was one of seeking information. We repeatedly stated our position as one of gathering information about the profession of podiatry to present to the House of Delegates. The podiatrists maintained a position of bargaining. They implied that because they had not pushed for passage of enabling legislation which would call for the inclusion of podiatry under Blue Shield, they were in a position to make the following requests:

1. Inasmuch as podiatry is recognized by many private insurance carriers, it should be recognized and covered by Blue Shield. The patient should have free choice of discipline in the treating of diseases of the foot. They maintained there would be no increase in cost of Blue Shield. (It was made clear that the question of coverage for podiatry services under Blue Shield is not up to the Medical Society but is a decision for the Blue Shield Board of Directors.)

2. Podiatry is a discipline which should not be considered "paramedical." They repeatedly stressed that they are improving their educational standards, staffing their schools with M.D.'s and maintaining high ethical standards for membership in the profession.

3. Podiatrists would like to treat patients in-hospital, either through a clinic or some method of limited surgical privilege. Podiatrists would like recognition on the State Board of Health, the Interprofessional Association and other such groups.

4. Podiatrists request that meetings with representatives of the Medical Society be continued for at least the next few years.

Your Committee, with the assistance of the IMS staff, has collected considerable information, which is attached to this report for your study: *

Exhibit A—A summary of the survey conducted by the Podiatry Committee.
Exhibit B—Chapter 149 of the Iowa Code which is the Chiropody Practice Act.
Exhibit C—A statement of policy of the American Academy of Orthopaedic Surgeons on the practice of podiatry in hospitals.
Exhibit D—Statement of the Joint Commission on Accreditation of Hospitals re status of chiropodists (November 8, 1954).
Exhibit E—Position of the Judicial Council of the AMA re association with podiatrists.

In addition to the above exhibits, the IMS Podiatry Committee will provide to the reference committee considering this report a brochure prepared by the Iowa State Podiatry Society which covers the history of podiatry, outlines the educational requirements and discusses just what a podiatrist does in the course of his practice.

Summary: Podiatry is a young and small paramedical group which considers itself separate from the long list of paramedical groups with which organized medicine must work. Its present leadership in Iowa is vocal, aggressive and well-organized. It is our opinion that the podiatrists seek, as a first goal, recognition from Blue Shield and, in the future, recognition by the various interprofessional organizations. We believe that if podiatrists do not attain voluntary recognition by Blue Shield and organized medicine in Iowa, they will certainly press for legislation in the 1963 Iowa Legislature to be included under Blue Shield.

Far more important than the singular problem of podiatrists and their recognition by the medical profession is the problem of many paramedical groups which are becoming more organized in our state and throughout the country. The care of the patient and the designation of responsibility must be the guides with which the paramedical groups are viewed. Or-

* These exhibits are omitted from the published version of the Committee's report. Interested members of the IMS may see them at the headquarters office.

ganized medicine cannot ignore the position of the specialty groups (orthopedists and dermatologists) most closely involved with the discipline of podiatry.

The policy of the American Academy of Orthopaedic Surgeons is attached to this report and labeled Exhibit C and should be considered in detail by this House before reaching a final decision. The IMS representatives advised the podiatrists that they could not speak for the House of Delegates and, further, that the House of Delegates could not be a final voice as to the inclusion of podiatrists in Blue Shield since this matter would of necessity be a decision of the Blue Shield Board.

The IMS Podiatry Committee submits to the House of Delegates the following suggested courses of action:

1. The House of Delegates can elect to recognize podiatry as a professional discipline which is nearly a sub-specialty of medicine. If this step is taken, the Blue Shield Board should be so advised. Also, podiatrists could be included on hospital staffs with privileges similar to that granted oral surgeons.

2. The House of Delegates can elect to follow the example of the Michigan State Medical Society which deals with all paramedical groups. A copy of the statement of policy of the Michigan State Medical Society re allied health professions and services in hospitals is attached to this report and labeled Exhibit F.

3. The House of Delegates can elect to continue the meetings between the IMS and the Iowa State Podiatry Society until a unified approach regarding paramedical groups is formulated either at the state or national level.

4. The House of Delegates can take no action.

Your Committee would recommend that no further meetings be held with the podiatrists unless a definite guideline for future discussions be recommended by the House of Delegates.

Respectfully submitted,
J. E. KELSEY, M.D., *Chairman*
C. E. RADCLIFFE, M.D.
F. E. THORNTON, M.D.
C. J. BAKER, M.D.
R. H. KUHL, M.D.

Resolutions

UNION COUNTY MEDICAL SOCIETY

NO. 1. PROPOSED HYPHENATION OF UNION-TAYLOR COUNTY MEDICAL SOCIETY

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, Union County Medical Society has agreed to the hyphenation of Union-Taylor County Medical Society, and

WHEREAS, Taylor County Medical Society has agreed to the hyphenation of Union-Taylor County Medical Society, and

WHEREAS, the Councilor of the area has agreed that this would be in the interest of organized medicine in the Councilor District, and

WHEREAS, this hyphenation has been approved by the Judicial Council of the Iowa Medical Society, be it therefore

Resolved, that the House of Delegates of the Iowa Medical Society, meeting in annual session in May, 1962, approve the hyphenation of Union-Taylor County Medical Society, with the understanding that each Society maintains its separate representation, but that they intend to meet as a single society, and should the future develop that either society increases in size, they may wish to return to separate society.

NO. 2. LIBERTY AMENDMENT

(Referred to the Reference Committee on Legislation and Public Relations. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, Union County Medical Society in 1961, proposed as Resolution No. 1 from that Society, in the 1961 session, essentially that Iowa Medical Society approved the then annotated 24th Amendment to the Constitution of the United States, now known as the LIBERTY Amendment, and

WHEREAS, the Reference Committee on Legislation and Public Relations of the House of Delegates of the Iowa Medical Society of 1961, suggested that the Union County Medical Society familiarize the Society and this body concerning the tenets of this Amendment, and asked for resubmission of the Union County Medical Society's Resolution at the 1962 session, we hereby submit the Resolution as written in 1961 with the change of 24th to Liberty Amendment only.

WHEREAS, Innumerable organizations under multitudes of names have been fighting piecemeal for maintenance of their little island of freedom, and

WHEREAS, It should be self-evident by this time that the medical profession cannot and will not exist as a free entity in an otherwise socialized state, and

WHEREAS, The proposed 24th Amendment to the Constitution of the United States of America will dispose of the welfare state into which we are rapidly drifting, therefore be it

Resolved, That the Union County Medical Society supports in total and asks for support from the Iowa Medical Society, for the proposed 24th Amendment which reads as follows:

"Section 1. The Government of the United States shall not engage in any business professional, commercial, financial or industrial enterprise except as specified in the Constitution.

"Section 2. The Constitution or laws of any State, or the laws of the United States shall not be subject to the terms of any foreign or domestic agreement which would abrogate this amendment.

"Section 3. The activities of the United States Government which violate the intent and purposes of this amendment shall within a period of three years from the date of ratification of this amendment, be liquidated and the properties and facilities affected shall be sold.

"Section 4. Three years after the ratification of this amendment the sixteenth article of amendments to the Constitution of the United States shall stand repealed and thereafter Congress shall not levy taxes on personal incomes, estates, and/or gifts." Be it further

Resolved, That copies of this Resolution be sent to all County Medical Societies of the State of Iowa, and all State Medical Societies of the 50 states, and be it finally

Resolved, That our delegates be instructed to place the Liberty Amendment in the exact wording as above stated before the House of Delegates of the American Medical Association and ask for and support passage.

In conjunction with the above Resolution, the Union County Medical Society has received permission to present its exhibit again this year, entitled "Freedom is not a Spectator's Sport" with the blessings of the members of the Union County Medical Society.

TAYLOR COUNTY MEDICAL SOCIETY

NO. 3. PROPOSED HYPHENATION OF UNION-TAYLOR COUNTY MEDICAL SOCIETY

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, Union County Medical Society has agreed to the hyphenation of Union-Taylor County Medical Society, and

WHEREAS, Taylor County Medical Society has agreed to the hyphenation of Union-Taylor County Medical Society, and

WHEREAS, the Councilor of the area has agreed that this would be in the interest of organized medicine in the Councilor District, and

WHEREAS, this hyphenation has been approved by the Judicial Council of the Iowa Medical Society, be it therefore

Resolved, that the House of Delegates of the Iowa Medical Society, meeting in annual session in May, 1962, approve the hyphenation of Union-Taylor County Medical Society, with the understanding that each Society maintains its separate representation, but that they intend to meet as a single society, and should the future develop that either society increases in size, they may wish to return to separate society.

ROGER W. BOULDEN, M.D., *President-Secretary*
Taylor County Medical Society

POLK COUNTY MEDICAL SOCIETY

NO. 4. COMMUNICABLE DISEASES REGULATIONS

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, enforcement of present State Health Department regulations for control of communicable diseases, especially in reference to management of contacts of patients with known scarlet fever, indicate that home contacts must be excluded from school for a week unless the patient has received penicillin therapy; and

WHEREAS, the present regulations are not in accord with recommended practices,

Therefore, Be It Resolved, That the State Department of Health be advised to revise regulations pertaining to communicable diseases, in particular, scarlet fever, to conform with recommendations of the American Public Health Association and the American Academy of Pediatrics.

SCOTT COUNTY MEDICAL SOCIETY

NO. 5. COMPREHENSIVE NATIONWIDE HEALTH CARE PROGRAM

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, It has been, and will continue to be, the desire of the Medical Profession that completely adequate medical care shall be made available to all who need same; and,

WHEREAS, Due to increases in costs of hospitalization, medical care and drugs (over which total costs the Medical Profession has relatively little control); and,

WHEREAS, Under our present system of private insurance and limited governmental subsidies, gross inadequacies exist; and,

WHEREAS, With continued increases in the costs of insurance plans as now available (private, government and combination), the result could well be either complete abandonment or drastic reduction by the individual of present health insurance coverage; and,

WHEREAS, This being true, a predictable and probable eventuality would be a marked deterioration in the quality and availability of medical care; and,

WHEREAS, WE DO NOT BELIEVE that the majority of the American people favor "Free" medical care, but rather, would embrace a mutually supported plan which would allow a reasonable degree of predictability of medical expenses;

Therefore Be It Resolved, That we hereby call upon ourselves, our Local, State and National Organizations to take the following positive actions immediately:

1. To assume responsibility for developing a comprehensive, nationwide health care program which will provide for:
   A. The medical needs of all persons in this Country, regardless of age, income, geographic location or state of employment;
   B. Voluntary participation by both patient and physician;
   C. Payment for office, outpatient and home care, since this is the most logical means of combatting unnecessary hospitalization, and encouraging preventive medical care.
2. To recognize that while the majority of people can be covered under such a plan on an actuarially sound basis governmental assistance will be required to cover those in several categories, namely:
   A. Individuals with chronic or pre-existing disease;
   B. Low income groups unable to afford all or part of the cost;
   C. Persons unable to defray the cost due to temporary economic hardship.
3. To recognize that free and uninhibited discussion is vital to the development of such a program, and to encourage this in our official publications, presenting *both* sides of debatable issues.

FIFTH DISTRICT CAUCUS

NO. 6. LEGAL IMMUNITY OF MEDICAL STAFF EVALUATION COMMITTEES AND RECORDS OF THESE COMMITTEES

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, in many hospitals medical staff committees evaluate the professional performance of members of the medical staff, and

WHEREAS, this evaluation is mandatory for hospitals accredited by the Joint Commission on Accreditation of Hospitals, and

WHEREAS, this evaluation of professional activities of medical staff members is for the purpose of elevating the standards of medical practice in the hospital, and

WHEREAS, written records of these committee activities are usually maintained, and

WHEREAS, the records of these evaluations should not be used in litigation involving the practice of medical staff members, and

WHEREAS, the use in litigation of these records would impair the effectiveness of the committees, and

WHEREAS, a number of states have enacted legislation providing legal immunity for those written records of professional evaluation and for the medical staff committees carrying out the evaluations,

Therefore Be It Resolved, That the Fifth District requests the House of Delegates of the Iowa Medical Society to consider similar legislation for Iowa, and

Be It Further Resolved, That if such legislation is found to be desirable, the legislative committee be requested to draft and sponsor such legislation in the next general assembly.

DES MOINES COUNTY MEDICAL SOCIETY

NO. 7. SHORTAGE OF TRAINED NURSES

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, A shortage of trained nurses already exists, and

WHEREAS, Current trends for accreditation of Schools for Nursing are creating cost and personal requirements that are forcing many of our good schools of nursing out of existence, and

WHEREAS, While it is agreed to be desirable to maintain and improve standards in any educational program, we cannot accept the sole principle of superior training for a few at the cost of good training for the many, therefore be it

Resolved, That the Iowa Medical Society present to the House of Delegates of the American Medical Association a resolution expressing concern over the changing trends in nurse education that are causing the discontinuance of schools of nursing in many non-hospitals, and be it further

Resolved, That the Iowa State Board of Nurse Examiners be informed as to the great concern felt by the physicians of the State of Iowa in the growing nurse shortage and our belief that unreasonable accreditation requirements are the main factors in this shortage.

LINN COUNTY MEDICAL SOCIETY

NO. 8. ANNUAL SESSION, IMS HOUSE OF DELEGATES

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, In the past several years it has become increasingly apparent that the second session of the annual meeting of the House of Delegates, Iowa Medical Society, is a race against time, and

WHEREAS, This condition has been brought about by the increasing number of major problems presented to the House of Delegates every year, and

WHEREAS, Due to the limited time many weighty and important problems have not been duly deliberated by the House, therefore be it

Resolved, That the Iowa Medical Society seriously explore the possibility and feasibility of changing the days of the two sessions of the House of Delegates, and be it further

Resolved, That in the exploration they give serious thought to changing the days of the session so that all business of the House of Delegates will be concluded by/or on the first day of the General Session.

CLINTON COUNTY MEDICAL SOCIETY

NO. 9. RESOLUTIONS

(Referred to the Reference Committee on Miscellaneous Business for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, County Delegates to the annual meeting of the Iowa Medical Society often are not familiar with the many resolutions presented;

Therefore, Be It Resolved, That any resolutions to be enacted at the annual meeting of the Iowa Medical Society be sent to each County Society at least two months prior to the State meeting, enabling each county to pass on each resolution and instruct their delegates accordingly.

Be It Further Resolved, That no resolutions presented to the Iowa Medical Society after one month prior to the annual meeting be accepted or acted upon at such meeting but will be held over for future meetings.

J. H. TAYLOR, M.D., *President*
A. L. JENSEN, M.D., *Secretary*

FAYETTE COUNTY MEDICAL SOCIETY

NO. 10. ADMINISTRATION OF ANESTHESIA

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the Code of Iowa (1950), Section 148.1, states: "For the purpose of this title the following classes of persons shall be deemed to be engaged in the practice of medicine and surgery:

1. Persons who publicly profess to be physicians or surgeons, or who publicly profess to assume the duties incident to the practice of medicine or surgery.
2. Persons who prescribe, or prescribe and furnish medicine for human ailments or treat the same by surgery.
3. Persons who act as representatives of any person in doing any of the things mentioned in this section," and

WHEREAS, the person administering anesthesia must constantly during the course of any anesthetic proeedure examine his patient, diagnose his present condition, and administer drugs to treat the ever-changing condition of the patient, and

WHEREAS, the Iowa Medical Society recognizes that the administration of anesthesia is part of the practice of medicine,

Now Therefore Be It Resolved, That the Iowa Medical Society recognizes that the person who administers anesthesia is practicing medicine and therefore should be licensed to practice medicine and surgery.

NO. 11. TRANSFER OF MEDICAL SERVICES FROM BLUE CROSS TO BLUE SHIELD

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the House of Delegates of the Iowa Medical Society in April, 1954, authorized the appointment of a special committee to negotiate with officials of the Iowa Hospital Association to achieve two objectives: (1) to eliminate the practice of medicine by hospitals; (2) to effect the transfer of medical services from Blue Cross contracts to Blue Shield contracts, and

WHEREAS, the House of Delegates of the Iowa Medical Society in April, 1954, approved the Supplementary Report of the Sub-Committee on Insurance, Martin I. Olsen, M.D., Chairman, and

WHEREAS, Blue Cross in Iowa is still making payments for medical services, and such medical services have not yet been transferred over to Blue Shield for coverage,

Now Therefore Let It Be Resolved, That the Iowa Medical Society in 1962 asks Blue Cross and Blue Shield in Iowa to expedite the action necessary to carry out the instructions of the 1954 House of Delegates.

NO. 12. VENDOR PAYMENT PROGRAM

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, Article I, Section 6, of the Bill of Rights of the Constitution of the State of Iowa states:

"All laws of a general nature shall have a uniform operation; the General Assembly shall not grant to any citizen, or class of citizens, privileges or immunities, which, upon the same terms shall not equally belong to all citizens," and

WHEREAS, the Vendor Payment Program of the Department of Social Welfare of the State of Iowa is supported financially by appropriations derived from the General Assembly, and

WHEREAS, the Vendor Payment program is class legislation for the following two reasons:

(1) Tax money is used to pay for services granted to only one specific group of citizens, based primarily on age, and

(2) Tax money is used to pay for medical services by making direct payments to the physicians only, to the exclusion of other professional men and artisans such as the TV repair man,

Now Therefore Let It Be Resolved, That the Iowa Medical Society recognizes the fact that the Vendor Payment Program of the State Department of Social Welfare of the State of Iowa is unconstitutional.

NO. 13. VENDOR PAYMENT PROGRAM

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the Vendor Payment program of the State Department of Social Welfare in Iowa offers specified amounts and types of medical care to certain specified recipients and then pays specified fees to physicians for performing these services without any regard to professional skill, competence, judgment or even reasonable care, and

WHEREAS, the members of the Iowa Medical Society favor a capitalistic economy wherein individual achievement and work can be rewarded on an individual basis, and

WHEREAS, the members of the Iowa Medical Society recognize the degrading effect on the quality of medical care in any scheme whereby each physician is paid a set fee for a given procedure regardless of what skill, judgment and care he may use, and

WHEREAS, the members of the Iowa Medical Society are opposed to any scheme which would tend to bring all medical care down to the same level of mediocrity,

Now Therefore Let It Be Resolved, That the Iowa Medical Society calls for an end to the Vendor Payment of the State Department of Social Welfare.

NO. 14. RELATIVE VALUE SCHEDULES

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the Iowa Medical Society in recent years has published a Relative Value Schedule and a Unit Fee Index at various times and is now considering a revision of same, and

WHEREAS, the history of the Relative Value Schedules and the Unit Fee Indices in Iowa has clearly shown that these are NOT optional guides for the use of the individual physician as he sees fit, but, rather are used by various agencies and bureaus as exact and dogmatic fee schedules, and

WHEREAS, the members of the Iowa Medical Society favor a capitalistic economy wherein individual achievement and work can be rewarded on an individual basis, and

WHEREAS, the members of the Iowa Medical Society recognize the degrading effect on the quality of medical care in any scheme whereby each physician is paid a set fee for a given procedure regardless of what skill, judgment and care he may use, and

WHEREAS, the members of the Iowa Medical Society are opposed to any scheme which would tend to bring all medical care down to the same level of mediocrity,

Now Therefore Let It Be Resolved, That the Iowa Medical Society hereby discontinues and repudiates any and all Relative Value Schedules and/or Unit Fee Indices or other similar schemes by whatever name called.

BUENA VISTA COUNTY MEDICAL SOCIETY

NO. 15. IOWA PHYSICIANS POLITICAL LEAGUE

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the political atmosphere in 1962 is such that free enterprise and the private practice of medicine are threatened as never before, and

WHEREAS, the privileges of living in a free society can be maintained only if a majority of men elected to public office believe in free enterprise, and

WHEREAS, medical societies as such cannot give direct financial support to their political friends and still maintain their tax-free status, and

WHEREAS, The Iowa Physicians Political League was organized to provide a means whereby physicians of Iowa could collectively give support to candidates friendly to medicine, and

WHEREAS, the organization and promotion of The Iowa Physicians Political League required the unselfish giving of considerable time and talents of a number of very busy physicians and others who have already sacrificed much for the profession,

Now Therefore Be It Resolved, That the officers and district chairmen of The Iowa Physicians Political League be highly commended for their unselfish devotion to the cause of medicine and for their success in creating an effective means whereby the doctors of Iowa may exert a significant influence on the political activities of the state and nation.

POCAHONTAS COUNTY MEDICAL SOCIETY

NO. 16. COMMENDATION OF OTTO N. GLESNE, PRESIDENT

(Resolution No. 16 was adopted unanimously by the House of Delegates without referral.)

WHEREAS, Otto N. Glesne, M.D., has given of his time and substance to the exacting and exhausting position of highest rank in our Society, and

WHEREAS, in the name of his office, he has traveled over 5,000 miles and visited some forty-five County Medical Societies, and attended many other professional and civic meetings,

Now Therefore Be It Resolved, That the House of Delegates commend and thank Otto N. Glesne, M.D., for his sterling efforts to bring State Society liaison to the grass roots of our profession.

JOHN M. RHODES, M.D., *Delegate*

CERRO GORDO COUNTY MEDICAL SOCIETY

NO. 17. SURVEY OF STATE INSTITUTIONS

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, during recent years an increasingly wide breach in rapport has developed between the physicians of Iowa and the State University of Iowa on the one hand, and the administration of the state institutions for the feeble minded on the other, and

WHEREAS, this lack of rapport has resulted in admission policies which primarily seem out of harmony with the best judgment of the majority of medical opinion in the state, and secondarily are frequently governed by political expediency rather than medical need, and

WHEREAS, problems relating to, and criticisms of said procedure and policy may be the result of inadequate facilities and/or finances,

Be It Therefore Resolved, That the Iowa Medical Society request that the Governor of the State of Iowa appoint a representative committee of physicians to survey the state institutions for feeble minded for the purpose of making recommendations to the Governor and/or legislature regarding (1) the physical and personnel needs thereof, and (2) alterations in admission procedures and policies to make the best use of such facilities as now exist; and

Be It Further Resolved, That the Iowa Medical Society request continuing participation in the supervision and operation of said institutions either by membership on the State Board of Control or in an advisory capacity thereto.

JOHNSON COUNTY MEDICAL SOCIETY

NO. 18. OPPOSITION TO KING-ANDERSON BILL

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

Be It Resolved, That the Johnson County Medical Society go on record as opposing the King-Anderson Bill.

NO. 19. PRIVATE MEDICAL CARE FOR SENIOR CITIZENS

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

Be It Resolved, That a committee of physicians, actuarians, legal counselors, representatives of Blue Cross and Blue Shield and representatives of common insurance carriers meet for the purpose of defining and calculating the cost of a health insurance policy for people 65 years of age and older which combines the following features:

(1) Non-cancellability
(2) The co-insurance principle
(3) Absence of restrictions as to duration or nature of ailment
(4) Out-patient diagnostic tests and x-rays
(5) Nursing home care

And, that such health insurance policies as will meet these criteria should be made available to all persons 65 years of age or older at a maximum premium set by the above committee; and that any citizen in this age group who is unable to pay this premium, in whole or in part, be entitled to have it paid in accordance with need by federal and state funds through the mechanism of the Kerr-Mills Bill; and that determination of need of assistance in paying the insurance premium is most accurately accomplished at the local level.

EXPLANATORY INFORMATION PROVIDED BY JOHNSON COUNTY MEDICAL SOCIETY RE RESOLUTION 19

The adoption of such a program as is described in Resolution No. 19 would embody the following desirable features:

(1) It would assure private medical care for all senior citizens in the event of otherwise financially catastrophic illness or accident.

(2) It utilizes the co-insurance principle thus giving patient, doctor, and hospital, on the one hand, incentive to use the insurance companies' funds efficiently toward the patient's recovery.

(3) It makes a private and commercially competitive insurance company the third party to medicine rather than the federal government.

(4) It eliminates the "means test" except for a once-a-year appraisal to determine that the individual is in need of assistance to pay the insurance premium. In obtaining hospital care and diagnostic work, all policyholders will be identified by the same identification card so there will be no visible difference between the self-paying and the state-paid insured.

(5) It permits individuals to buy health insurance which is known to be free of omissions, restrictions, and other loopholes, and which physicians and hospital administrators can recognize *prima facie* as good.

FAYETTE COUNTY MEDICAL SOCIETY

NO. 20. LIBERTY AMENDMENT

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, the Iowa Medical Society is opposed to creeping inflation and the increasing power of the bureaucracy of the federal government, and

WHEREAS, the proposed Liberty Amendment appears to be a possible answer to the problem of how to restore individual liberty to the American people,

Now Therefore Let It Be Resolved, That the Iowa Medical Society favors a program of education for its members concerning the content and meaning of the proposed Liberty Amendment to the Constitution of the United States, and the officers of the Iowa Medical Society are hereby empowered to take whatever steps are necssary to carry out such an educational program.

POCAHONTAS COUNTY MEDICAL SOCIETY

NO. 21. ADOPTION AND IMPLEMENTATION OF THE PRINCIPLE OF INDIVIDUAL RESPONSIBILITY IN GOVERNMENT AND PRIVATE HEALTH CARE PROGRAM

(Referred to the Reference Committee on Insurance and Medical Service for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, medicine is currently under attack by those who would convert it piecemeal to a socialistic system, and

WHEREAS, medicine needs a workable mechanism by which it can unite its members to permanently reverse socializing trends and preserve the free enterprise system, and

WHEREAS, under the present "vendor concept" of state and federal programs, government has assumed collective responsibility for those covered, but has legislated that *vendors* assume responsibility at an administrative and financial discount, while *recipients* have little or no responsibility, and

WHEREAS, acceptance of financial remuneration from the government constitutes *de facto* employment and control of physicians by these agencies and bureaus, and

WHEREAS, private agencies such as health insurance companies and Blue Shield are able to process simple, standard physician-supplied forms incorporating the individual responsibility principle, therefore be it

Resolved, that the Iowa Medical Society reappraise its policy regarding third party intervention between the doctor and patient and adopt and implement the philosophy of *individual responsibility* between these two parties, and be it further

Resolved, that the IMS press for abolishment of the *vendor*

concept in favor of the *recipient concept* in all government medical programs, and be it further

Resolved, that the IMS immediately take steps to formulate a working plan incorporating standardized forms to implement a statewide *Individual Responsibility Plan.*

JOHN M. RHODES, M.D., *Delegate*

JASPER COUNTY MEDICAL SOCIETY

NO. 22. OPPOSITION TO KING-ANDERSON BILL

(Referred to the Reference Committee on Legislation and Public Relations for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

1. WHEREAS the King-Anderson Bill is discriminatory and fails to meet the medical needs of all of the nation's senior citizens.
2. WHEREAS the King-Anderson Bill is a compulsory program.
3. WHEREAS the King-Anderson Bill could interfere with free choice of hospitals and physicians.
4. WHEREAS the King-Anderson Bill will increase federal control of social needs rather than local control.
5. WHEREAS the King-Anderson Bill would be inordinately expensive and added to the Social Security program which in itself is known to be actuarially unsound.
6. WHEREAS the presently enacted Kerr-Mills Law meets all of the requirements of our senior citizens in need of medical care.

Be It Therefore Resolved (1). That the Iowa Medical Society make it a matter of record that they are unalterably opposed to the King-Anderson Bill which is now in committee before the Congress of the United States. (2). That the physicians of the State of Iowa will continue to provide medical care as they have previously, for all of our citizens regardless of their economic status.

POLK COUNTY MEDICAL SOCIETY

NO. 23. ANNUAL MEETING PLACE, 1964

(Referred to the Reference Committee on Reports of Officers for study and recommendation. For final action by the House of Delegates, see the report of the reference committee.)

WHEREAS, Des Moines is the most desirable city in which to hold the Annual Meeting of the Iowa Medical Society, and

WHEREAS, Polk County physicians are happy to have the members of the Iowa Medical Society as our guests, therefore

Be It Resolved, that the Polk County Medical Society extend the invitation to the Iowa Medical Society to hold its Annual Meeting, April 26 through April 29, 1964, in Des Moines, Iowa.

PAST PRESIDENTS OF IMS

NO. 24. DEAN OF THE COLLEGE OF MEDICINE AT S.U.I.

(This resolution was introduced with the permission of the House of Delegates at its final session on Wednesday, May 16. It was adopted by the House of Delegates without referral.)

WHEREAS, The position of Dean of the College of Medicine of the State University of Iowa will be vacant on June 30, 1962, because of the resignation of Dean Norman B. Nelson, M.D., and

WHEREAS, A vacancy leads to deterioration of the standards of medical education offered by the College of Medicine of the State University of Iowa, and

WHEREAS, Deterioration of the quality of medical education ultimately leads to inferior medical care for the people of Iowa, therefore be it

Resolved, That the Iowa Medical Society urges the appointment of a new Dean of the College of Medicine of the State University of Iowa at the earliest possible date, and be it further

Resolved, That the Iowa Medical Society inform the President of the State University of Iowa of our desire to be of assistance in any manner he may request in the securing of a new Dean for the College of Medicine of the State University of Iowa, and be it further

Resolved, That the President of the Iowa Medical Society appoint a committee to implement this resolution.

LIFE AND ASSOCIATE MEMBERSHIPS

LIFE MEMBERSHIP RECOMMENDED ON THE BASIS OF 50 YEARS' PRACTICE AND 30 YEARS' MEMBERSHIP

Boone County	Charles L. Updegraff, Boone Ben T. Whitaker, Boone
Clinton County	Elmer P. Weih, Clinton
Dubuque County	John C. Kassmeyer, Dubuque Henry M. Pahlas, Dubuque
Floyd County	Oscar H. Banton, Charles City
Jones County	Colin G. Thomas, Monticello
Kossuth County	John G. Clapsaddle, Burt
Monona County	Martin O. Stauch, Moorhead
Scott County	William C. Goenne, Davenport Robert S. Taylor, Davenport
Woodbury County	Charles T. Maxwell, Sioux City

ASSOCIATE MEMBERSHIPS RECOMMENDED ON THE BASIS OF RETIREMENT OR INCAPACITATION

Clinton County	Leonard O. Riggert, Clinton George C. Scanlan, Clinton
Johnson County	Evelyn Dulin, Iowa City
Linn County	Leo B. Sedlacek, Cedar Rapids
Polk County	Henry E. Kleinberg, Des Moines John H. Tait, Des Moines
Union County	A. Fred Watts, Creston
Wayne County	Lloyd B. Galbreath, Humeston Carl F. Brubaker, Corydon
Wapello County	Vernon S. Downs, Ottumwa Lawrence A. Taylor, Ottumwa
Black Hawk County	Valiant D. French, Cedar Falls
Woodbury County	L. J. Frank, Sioux City

Nominations for the outstanding Iowa General Practitioner of the Year Award were received.

The House of Delegates adjourned at 1:15 p.m.

WEDNESDAY SESSION, MAY 16, 1962

The Wednesday session of the House of Delegates was called to order at 8:00 a.m. The House approved the taking of attendance by registration cards. There were 113 delegates, 11 voting alternates and 14 ex-officio members present.

County	*Delegate*	*Alternate*
Adair		
Adams	C. L. Bain	
Allamakee		
Appanoose	E. A. Larsen	
Audubon		
Benton		
Black Hawk	R. C. Miller	
	F. G. Loomis	
	G. D. Phelps	
	C. D. Ellyson	
		R. D. Acker
Boone	G. H. Sutton	
Bremer	V. H. Carstensen	
Buchanan	R. L. Knipfer	
Buena Vista	P. W. Brecher	
Butler	F. A. Rolfs	
Calhoun	C. R. Wilson	
Carroll	J. M. Tierney	
Cass	E. M. Juel	
Cedar		
Cerro Gordo	J. W. Lannon	
	H. W. Morgan	
	F. W. Saul	
Cherokee	D. C. Koser	
Chickasaw	D. L. Trefz	
Clarke	G. I. Armitage	
Clay	D. H. King	
Clayton	E. G. Kettelkamp	
Clinton	H. A. Amesbury	
	M. E. Barrent	
Crawford		
Dallas-Guthrie	W. A. Castles	
	R. J. Peterson	
Davis		R. L. Allen
Decatur	E. E. Gamet	
Delaware	R. E. Clark	
Des Moines		

County	*Delegate*	*Alternate*
Dickinson		R. J. Coble
Dubuque	R. J. McNamara	
	D. F. Ward	
Emmet	H. A. Lindholm	
Fayette	A. F. Grandinetti	
Floyd	R. M. Nielsen	
Franklin	R. E. Munns	
Fremont		
Greene	R. W. Burke	
Grundy		H. V. Kahler
Hamilton	G. A. Paschal	
Hancock-Winnebago	J. R. Camp	
	J. T. Mangan	
Hardin	J. J. Shurts	
Harrison	J. W. Barnes	
Henry		
Howard	Abner Buresh	
Humboldt	I. T. Schultz	
Ida		
Iowa	D. F. Miller	
Jackson		
Jasper	J. W. Billingsley	
Jefferson	K. H. Strong	
Johnson	C. P. Goplerud	K. J. Judiesch
	J. M. Layton	C. E. Radcliffe
	C. E. Schrock	
	K. R. Cross	
	W. M. Kirkendall	
	A. C. Wise	
Jones	L. D. Caraway	
Keokuk		
Kossuth	M. G. Bourne	
Lee	L. C. Pumphrey	
		J. W. Saar
Linn	J. J. Keith	
	J. J. Redmond	
	L. J. Halpin	
		H. R. Hirleman
Louisa		
Lucas	D. D. Watson	
Lyon	G. D. Bullock	
Madison	J. E. Evans	
Mahaska	G. S. Atkinson	
Marion		Peter Van Zante
Marshall	O. D. Wolfe	
	L. O. Goodman	
Mills		
Mitchell		
Monona	J. L. Garred	
Monroe		
Montgomery	Oscar Alden	
Muscatine		
O'Brien	J. C. Peterson	
Osceola		F. B. O'Leary
Page	G. H. Powers	
Palo Alto	G. H. Keeney	
Plymouth	W. L. Downing	
Pocahontas	J. M. Rhodes	
Polk	J. T. Bakody	
	E. T. Burke	
	D. F. Crowley, Jr.	
	C. W. Losh, Jr.	
	N. W. Irving, Jr.	
	M. T. Bates	
	L. O. Ely	
	R. B. Stickler	
	M. H. Dubansky	
	J. T. McMillan	
	P. K. Hughes	
	B. M. Merkel	
	W. J. Morrissey	
Pottawattamie	C. V. Edwards, Jr.	
	F. E. Marsh, Jr.	
	F. N. Weber	
Poweshiek		
Ringgold	D. E. Mitchell	
Sac	J. W. Gauger	
Scott	P. E. Gibson	
	J. H. Sunderbruch	
	J. F. Bishop	
	W. S. Pheteplace	
Shelby	G. E. Larson	
Sioux	M. O. Larson	
Story	G. E. Montgomery	
	J. D. Conner	
Tama	C. W. Maplethorpe	
Taylor	R. W. Boulden	
Union	D. L. York	
Van Buren		
Wapello	E. W. Ebinger	
	K. E. Lister	
Warren	Amalgamated with Polk County	
Washington	G. J. Nemmers	
Wayne	C. N. Hyatt	
Webster	H. H. Kersten	
	D. E. Tyler	
Winneshiek	R. M. Dahlquist	
Woodbury	J. W. Bushnell	
	P. M. Cmeyla	
	R. C. Larimer	
	J. M. Krigsten	H. E. Rudersdorf
Worth	B. H. Osten	
Wright	C. P. Hawkins	

DELEGATES AT LARGE

H. W. Mathiasen J. W. Billingsley

OFFICERS PRESENT AS EX-OFFICIO MEMBERS OF THE HOUSE

O. N. Glesne	J. E. Houlahan
G. H. Scanlon	G. E. McFarland, Jr.
R. F. Birge	J. W. Ferguson
H. J. Smith	L. V. Larsen
C. V. Edwards, Sr.	W. L. Downing
S. P. Leinbach	Fred Sternagel
C. W. Seibert	W. D. Abbott

Minutes of the May 13 meeting of the House of Delegates were read and approved. The election of officers followed and the following physicians were chosen:

President-Elect	C. V. Edwards, Sr., M.D., Council Bluffs
Vice-President	G. E. McFarland, Jr., M.D., Ames
Trustee (3 year term)	*S. P. Leinbach, M.D., Belmond
Speaker of the House	L. J. Halpin, M.D., Cedar Rapids
Vice Speaker of the House	P. M. Kersten, M.D., Fort Dodge
Councilor, 2nd District	J. F. Paulson, M.D., Mason City
Councilor, 6th District	J. W. Ferguson, M.D., Newton
Councilor, 7th District	*C. E. Radcliffe, M.D., Iowa City
Councilor, 9th District	K. E. Lister, M.D., Ottumwa
Councilor, 10th District	E. E. Gamet, M.D., Lamoni
Councilor. 11th District	W. G. Kuehn, M.D., Clarinda
AMA Delegate	*L. W. Swanson, M.D., Mason City
AMA Delegate	H. J. Smith. M.D., Des Moines

(AMA delegates to assume office January 1, 1963.)

* Reelected.

Reference Committee Reports

The following reference committee reports were presented to and approved by the House of Delegates.

GENERAL PRACTITIONER OF THE YEAR AWARD

The Reference Committee on Outstanding General Practitioner Award is privileged to recommend Edwin B. Walston, M.D., of Des Moines, as Iowa's Outstanding General Practitioner for 1962.

Dr. Walston has practiced medicine for 69 years, and has given devoted service to patients and his profession.

Many letters presented by professional colleagues and patients attest to his loyal dedication to the practice of medicine.

OSCAR ALDEN, M.D., *Chairman*
C. L. BAIN, M.D.
M. G. BOURNE, M.D.
G. H. KEENEY, M.D.
I. T. SCHULTZ, M.D.

MISCELLANEOUS BUSINESS

The Reference Committee on Miscellaneous Business met and considered in open session those resolutions which were referred to it.

1. Resolution Nos. 1 and 3, being identical resolutions presented by Union and Taylor Counties, having to do with the hyphenation of those two county societies, are approved.

Mr. Speaker, I move adoption of this portion of the report.

2. Resolution No. 9 introduced by Clinton County is approved as to intent, but is reworded as follows:

"Those resolutions to be acted upon at the first session of the House of Delegates at the Annual Meeting of the Iowa Medical Society should be prepared and sent so as to arrive at the State Society office by March 1 in order that they may be reproduced in the Delegates' HANDBOOK and sent out to each delegate for

consideration by the component medical societies. Resolutions arriving after March 1 will not have the benefit of this statewide distribution but will be presented to the House of Delegates in the usual manner."

Mr. Speaker, I move adoption of this portion of the report.

3. In consideration of Resolution No. 8 by the Linn County Medical Society, it is recognized that a problem of time as to the Wednesday morning session does exist. However, after extended consideration of this, it was felt by the Committee that no simple solution was apparent at this time; and it is hereby recommended that a high echelon committee be appointed by the President to consider the problems involved, with adequate time for liaison with the officers and staff of the Society, in an attempt to come up with a recommendation for the improvement or solution of this problem.

Mr. Speaker, I move adoption of this portion of the report.

4. In considering Resolution No. 7 which has to do with a shortage of trained nurses, the Committee recognizes that this has been an increasing problem. After extended discussion in open session, it became quite evident from the remarks of Dr. H. Mathiasen, who has headed the Committee on Nursing Education, that extended effort has been made in this field in conjunction with the nursing authorities in efforts of reshaping policy as regards training of nurses. In addition, Dr. Glesne commented as to the immediate institution of a newly-devised program for the two-year training of nurses which is to be instituted in Fort Dodge beginning this year. This is one evidence of the work of this Committee. It is felt by the Reference Committee that the prior efforts are to be commended and that efforts be continued by the presently-formed committees in a continuing effort to correct the nursing shortage.

Mr. Speaker, I move adoption of this portion of the report.

5. Concerning Resolution No. 4 introduced by Polk County Medical Society regarding communicable diseases, it is recommended by the Committee that this resolution be referred to the Committee on Public Health for action.

Mr. Speaker, I move adoption of this portion of the report.

Mr. Speaker, I move adoption of this report as a whole.

Respectfully submitted,
L. O. GOODMAN, M.D., *Chairman*
J. D. CONNER, M.D.
D. L. TREFZ, M.D.
C. R. WILSON, M.D.

REPORTS OF OFFICERS

I. We recommend that Resolution No. 23, presented by the Polk County Medical Society, be adopted. The dates were deleted from the resolution at the Sunday session of the House of Delegates. Circumstances, and ability of the officers to secure meeting facilities, will dictate the dates.

Mr. Speaker, I move the adoption of this portion of the report.

II. The next order of business referred to the Reference Committee on Reports of Officers was the Supplemental Report of the Board of Trustees. To expedite the work of the Reference Committee, the report of the Board was reviewed paragraph by paragraph. The paragraphs to which special attention is called are as follows.

The Committee agreed with the Supplemental Report of the Board of Trustees that all committees had worked most diligently and faithfully. In the words of the report of the Board of Trustees, may we quote: "Because it is strong, the Society is recognized as a leader, and this assumption of leadership carries with it responsibility, sacrifice and hard work," which means not only your elected officers, but also all of your committees. This means the Committee notes the activities of all the Standing and Special Committees, and wishes to commend them for their work. We take up activities of some of the committees because of specific importance, and these are mentioned separately for the matter of emphasis.

Paragraph No. 8—The Committee wishes to compliment the Program Committee for its labor, and particularly for its development of the special tabloid newspaper. The Committee feels this should be continued, and possibly expanded.

Paragraph No. 9, relative to the report of the Committee on Legislation is reported by the Reference Committee on Legislation and Public Relations and needed no action on the part of this Committee.

Paragraph No. 12—The Committee wishes to particularly bring to your attention the work of the Relative Value Study Committee. It is noted that this Committee has worked for two years—many hours—and their work will only be fully realized by each and every member of the IMS. A simple perusal of this report will not indicate its value—time will show its true merit.

Paragraph No. 15—Very few of the members of the IMS realize the activity and the good public relations that the Committee on National Emergency Medical Service has and is accomplishing. We recommend it be commended, and have the Committee continued.

Mr. Speaker, I move the adoption of this portion of the report.

Paragraphs No. 17 and 18—In pursuit of mutual improvement, both for the Iowa Medical Society and Blue Shield as they serve the public, the Committee recommends that a mechanism be created to have regular and continuing contacts between the Board of Trustees and Blue Shield, such as a Subcommittee of the Board of Trustees meeting with representatives of Blue Shield Public Relations, Physicians' Relation, Sales and Claims Departments, to advise and discuss the inter-relationship of Blue Shield and the Iowa Medical Society. It is specifically recommended by this Committee that the Board of Trustees report back their progress and action to the next meeting of the House of Delegates.

Mr. Speaker, I move the adoption of this portion of the report.

Paragraphs No. 19 and 20—That part of the Supplemental Report of the Board of Trustees dealing with the resolution which emanated from this House in 1959, and which was forwarded to the North Central Medical Conference and the AMA House of Delegates in 1961 (and was neither rejected nor accepted by the AMA House of Delegates), was the next order of business. The Committee felt very keenly on this question, because whether the King-Anderson or any other similar bill is passed or not, such problems are going to, and will be, one of the major problems involving

our public relations as a body, and each and every one of us as private practitioners. It was therefore recommended that the following resolution be passed by the House and forwarded to the American Medical Association's House of Delegates at its next annual meeting:

WHEREAS, The general public is mis- and/or ill-informed relative to the American way of the practice of medicine, and because of repeated continuing attacks on the private system of medical care, therefore be it

Resolved, That the American Medical Association continue to promote and expand national public information programs based on the American way of the practice of medicine.

Mr. Speaker, I move the adoption of this portion of the report.

Paragraphs No. 21 and 22—It is recommended by this Committee that either with or without the educational program, we continue to work in such public relations projects as Hawkeye Science Fair and Iowa Interprofessional Association, to continue and improve our radio-press-television activities, senior medical student conference, and distribution of special informational literature such as the "In the Public Interest" series.

Mr. Speaker, I move the adoption of this portion of the report.

Paragraphs No. 37 through 40—There is only one part of the financial report that needs special consideration by this House, and that is concerning the present building and building fund. In the preface to this report, it was noted that this is a strong organization, which requires and has an excellent staff needing proper facilities wherein to carry out its activities. Two things are of fact: (1) Our present building is at this moment too small, and (2) if the activities of the Society are to be carried on at its present rate of activity—and we expect it to actually increase—it is necessary that we give approval to the Board of Trustees to proceed with investigation, preparation, and finalization of plans for adequate facilities for the office of the Iowa Medical Society. This authority on the building proposal is given with the expressed understanding that there will be no increase in dues. If this becomes necessary, the project must be returned to the House of Delegates for further action.

Mr. Speaker, I move the adoption of this portion of the report.

Mr. Speaker, I move the adoption of the report as a whole.

Respectfully submitted,
J. W. BUSHNELL, M.D., *Chairman*
E. E. GAMET, M.D.
E. G. KETTELKAMP, M.D.
L. C. PUMPHREY, M.D.
D. F. RODAWIG, SR., M.D.

ARTICLES OF INCORPORATION AND BY-LAWS

The Reference Committee on Articles of Incorporation and By-Laws considered the supplemental report of the standing committee on Articles of Incorporation and By-Laws.

The Reference Committee approved the recommendations contained in the supplemental report of the standing committee on Articles of Incorporation and By-Laws with two major changes. The changes are as follows: The first is that at least four rather than two names will be submitted to the House of Delegates for vote to fill the two positions. The second is that the Liaison Committee nominations will be made to the Nominating Committee of the Iowa Medical Society rather than to the President.

The amendment as approved by the Reference Committee is as follows:

Resolved: That the By-Laws of the Iowa Medical Society as amended, be amended by striking therefrom the whole of Chapter XIII, and substituting in lieu thereof the following:
CHAPTER XIII, LIAISON DELEGATES, No later than 15 days prior to the annual meeting of the Nominating Committee, the Liaison Committee shall submit to the Nominating Committee the names of four or more active or life members of this Society in good standing for the preceding five years, for the positions of Liaison Delegates. The names so submitted by the Nominating Committee will appear on the lists of candidates for offices and on the printed ballot referred to in Sections 4 and 5 of Chapter IV. From the names so submitted the House of Delegates shall elect two Liaison Delegates to serve as members of the House of Delegates and of the Executive Council as provided in the Articles of Incorporation. Liaison Delegates shall assume office upon adjournment of the annual meeting at which they were elected and shall serve for a term of one year and/or until their successors shall have been elected. A vacancy in the position of Liaison Delegates shall be filled by the Executive Council from nominations submitted by the Liaison Committee, of one or more active or life members of this Society in good standing for the preceding five years, to complete the term of the elected Liaison Delegate.

Mr. Speaker, I move the adoption of this portion of the report.

The Reference Committee on Articles of Incorporation and By-Laws considered and endorsed the amendment to Chapter VI, Section 2, proposed in the supplemental report of the standing committee. That amendment is as follows:

Resolved: That Section 2, Chapter VI, of the By-Laws of the Iowa Medical Society as amended be and it hereby is amended by adding to the second sentence thereof, after the word "service" a comma (,) and inserting thereafter the following: "and for American physicians located in foreign countries and engaged in medical missionary and similar educational and philanthropic labors,"

Mr. Speaker, I move the adoption of this portion of the report.

The Reference Committee on Articles of Incorporation and By-Laws considered and endorses the following:

Be It Further Resolved: That the Chairman of the Board of Trustees and the Secretary of the Iowa Medical Society be and they hereby are authorized and directed to sign, acknowledge and publish the foregoing Amendments as the Seventh Amendments to the By-Laws of Iowa Medical Society, as amended, and to do all other things required by law or otherwise to execute, complete, and place in lawful effect said Amendments.

Mr. Speaker, I move the adoption of this portion of the report.

The Reference Committee on Articles of Incorporation and By-Laws considered the proposed technical amendment in the supplementary report of the standing committee on Articles of Incorporation and By-Laws and endorsed the following amendment:

Resolved: That the Amended and Substituted Articles of Incorporation of Iowa Medical Society, as amended, be and hereby are amended by deleting from ARTICLE IV, Section 16, thereof, and ARTICLE VI, Section 1, the words "Delegates-at-Large" and wheresoever else such words may appear in said Amended and Substituted Articles of Incorporation of Iowa Medical Society as amended, and substitute in lieu of such words the words "Liaison Delegates."

Mr. Speaker, I move the adoption of this portion of the report.

Be It Further Resolved: That the Chairman of the Board of Trustees and the Secretary of Iowa Medical Society be and they hereby are authorized and directed to sign, acknowledge, record and publish the foregoing Amendments as the Seventh Amendments to the Amended and Substituted Articles of Incorporation of Iowa Medical Society and to do all other things required by law to execute, complete and place in lawful effect said Amendments.

Mr. Speaker, I move the adoption of this portion of the report.

Mr. Speaker, I move the adoption of the report as a whole.

Respectfully submitted,
P. M. CMEYLA, Sioux City, *Chairman*
G. I. ARMITAGE, Osceola
P. W. BRECHER, Storm Lake
L. O. ELY, Des Moines
E. M. JUEL, Atlantic

INSURANCE AND MEDICAL SERVICE

Your Reference Committee on Insurance and Medical Service was given the responsibility of considering the following items referred to it by the House of Delegates:

1. Supplemental Report of the Subcommittee on Utilization of the Subcommittee on Prepayment Medical Care.

2. Supplemental Report of the Policy-Evaluation Committee.

3. Resolution No. 5 introduced by Scott County Medical Society. Subject: Comprehensive Nationwide Health Care Program.

4. Resolution No. 10 introduced by Fayette County Medical Society. Subject: Administration of Anesthesia.

5. Resolution No. 11 introduced by Fayette County Medical Society. Subject: Transfer of Medical Services from Blue Cross to Blue Shield.

6. Resolution No. 14 introduced by Fayette County Medical Society. Subject: Relative Value Schedules.

7. Resolution No. 19 introduced by Johnson County Medical Society. Subject: Health Insurance for Senior Citizens.

8. Resolution No. 21 introduced by Pocahontas County Medical Society. Subject: Adoption and Implementation of the Principle of Individual Responsibility in Government and Private Health Care Programs.

Your Reference Committee met in open session on Sunday afternoon, May 13, 1962, to hear opinions on these items from Society members.

1. Supplemental Report of the Subcommittee on Utilization of the Subcommittee on Prepayment Medical Care.

Your Reference Committee is sympathetic to the recommendation of the Joint Committee of the IHA-IMS that a pilot program be approved by the House of Delegates. However, considering the possible fact of the large expenditure of funds which might be needed to conduct the pilot program, your Reference Committee recommends this report be referred to the Board of Trustees of the IMS for their evaluation and determination whether such study is feasible at the present time.

Mr. Speaker, I move the adoption of this portion of the report.

2. Supplemental Report of the Policy-Evaluation Committee.

Your Reference Committee recommends this report be divided into three parts:

Part A—Your Reference Committee recommends this House of Delegates approve the National Blue Shield Senior 65 Plan be accepted with local rating and local control.

Mr. Speaker, I move the adoption of this portion of the report.

Part B—Your Reference Committee recommends the approval of the request from the Policy-Evaluation Committee that the Blue Shield Blue Chip Program be re-referred to the Policy-Evaluation Committee for further study.

Mr. Speaker, I move the adoption of this portion of the report.

Part C—In respect to the request from the Health Insurance Council regarding the proposal that the medical profession bill the senior citizens of Iowa with private insurance the same way it bills the senior citizens with Blue Shield Senior Program coverage, adjusting his fees according to the economic circumstances of the patient rather than the form of coverage, and as the Health Insurance Council did not request the medical profession to

1) approve any particular form of coverage, or
2) accept full service coverage,

your Reference Committee has no recommendations to this House of Delegates.

Mr. Speaker, I move adoption of this portion of the report.

3. Resolution No. 5. Subject: Comprehensive Nationwide Health Care Program.

Your Reference Committee believes this Resolution involves a matter of policy and recommends it be referred to the Policy-Evaluation Committee of the IMS.

Mr. Speaker, I move the adoption of this portion of the report.

4. Resolution No. 10. Subject: Administration of Anesthesia, and

Resolution No. 11. Subject: Transfer of Medical Services From Blue Cross to Blue Shield.

Your Reference Committee believes that both Resolutions relate to the same subject. Your Committee sympathizes with the context of the Resolutions but believes the directives of the 1954 House of Delegates are being implemented as rapidly as adequate anesthesiological service can be provided.

Mr. Speaker, I move the adoption of this portion of the report.

5. Resolution No. 14. Subject: Relative Value Schedules.

Your Reference Committee recommends this resolution be tabled by the House of Delegates.

Mr. Speaker, I move adoption of this portion of the report.

6. Resolution No. 19. Subject: Health Insurance for Senior Citizens.

Your Reference Committee recommends that, because of the unusual expenses involved in hiring actuaries and legal counsel for an extended investigation, this Resolution should be referred to the Board of Trustees of the IMS for further exploration.

Mr. Speaker, I move the adoption of this portion of the report.

7. Resolution No. 21. Subject: Adoption and Implementation of the Principle of Individual Responsibility in Government and Private Health Care Programs.

Your Reference Committee believes this Resolution offered by Pocahontas County Medical Society affords interesting possibilities, is worthy of further study and should be referred to the Executive Council of the IMS for study and report to the 1963 House of Delegates.

Mr. Speaker, I move the adoption of this portion of the report.

Mr. Speaker, I move the adoption of this report as a whole.

Your Reference Committee Chairman wishes especially to commend his fellow Reference Committee members for their diligence, patience and capable assistance.

Respectfully submitted,
M. O. LARSON, M.D., *Chairman*
J. W. Billingsley, M.D.
W. J. Morrissey, M.D.
J. M. Tierney, M.D.

LEGISLATION AND PUBLIC RELATIONS

Your Reference Committee on Legislation and Public Relations held open hearings on Sunday, May 13, 1962, for over four hours. Following this, further deliberations took place in executive session, with the Committee referring to previous reports and additional information supplied by previous committees and our legal counsel. The following items were referred to this Committee by the House of Delegates:

SUPPLEMENTAL REPORTS (6)
Committee on Legislation
Subcommittee on Medical Services to the Indigent
Grievance Committee
Subcommittee on Adoption
Committee on Mental Health
Chiropractic Committee

RESOLUTIONS 2, 6, 12, 13, 15, 17, 18, 20, 22

TWO HANDBOOK REPORTS WERE ALSO REFERRED TO THE REFERENCE COMMITTEE:

One on Radiation Control, and the other from the Medico-Legal Committee—including an Informational Memorandum from Marion County.

Your Reference Committee wishes to commend all the committee reports which were considered as they obviously represent much thought, consideration and time. Particularly, we wish to point out the diligent efforts of the Committees on Legislation and Public Relations. In addition, we wish to commend those members of the Iowa Medical Society staff, Gerald Buckles and Rosanne R. Sammons, for the long and late hours they have spent in helping this Reference Committee to prepare this report.

SUPPLEMENTAL REPORT OF THE COMMITTEE ON LEGISLATION

Because of the large amount of material and various subjects covered in this report, the Reference Committee considered this report in sections. As we considered each section, those resolutions and other committee reports which were pertinent were considered at the same time.

The first eight paragraphs of the report contain informational material submitted to the House of Delegates, and thus no action was required by this Committee.

Mr. Speaker, I move the adoption of this portion of the report.

STATE LEGISLATION

1. *Kerr-Mills Implementation.* Your Reference Committee recommends adoption of this section of the report without change.

Mr. Speaker, I move the adoption of this portion of the report.

2. *Chiropractic and Osteopathic.* Under this section of the Supplemental Report of the Committee on Legislation, your Reference Committee also considered the Supplemental Report of the Chiropractic Committee.

Your Reference Committee recommends adoption of this section of the Legislative Committee's Supplemental Report.

Mr. Speaker, I move the adoption of this portion of the report.

As regards the Supplemental Report of the Chiropractic Committee, your Reference Committee feels that the report is not sufficiently detailed at this time with regard to the new plan of action which the Chiropractic Committee is considering. Therefore, the Reference Committee recommends that no action be taken by the House of Delegates at this time, but that this Committee continue to develop the plan of action in detail, and as previously stated in the Supplemental Report of the Committee on Legislation, refer the completed plan to the Executive Council of the Iowa Medical Society for consideration.

We wish to point out to the House of Delegates that the Chiropractic Committee consists of men who have had years of experience with this problem, and that wholesale replacement of the Committee personnel by the president of the Iowa Medical Society at this time would result in the loss of this valuable experience.

Mr. Speaker, I move the adoption of this portion of the report.

3. *Podiatry.* Your Reference Committee notes that the Judicial Council, sitting as a reference committee, has considered the matter of podiatry in detail. We recommend that the Legislative Committee continue in the forthcoming year to maintain contact with the legislative aspects of this matter.

Mr. Speaker, I move the adoption of this portion of the report.

4. *Nursing.* The Reference Committee recommends the acceptance of this section of the report as presented.

Mr. Speaker, I move the adoption of this portion of the report.

5. *Confidentiality of Medical Studies.* In conjunction with this section of the Supplemental Report of the Committee on Legislation, your Reference Committee also considered Resolution 6, introduced by the Fifth District Caucus. Your Reference Committee recommends adoption of this section of the report of the Legislative Committee and adoption of Resolution 6, amended to read as follows:

"*Resolved,* that the House of Delegates of the Iowa Medical Society direct the Committee on Legislation to draft and support such legislation in the next General Assembly of the State of Iowa."

Mr. Speaker, I move the adoption of this portion of the report.

6. *Tort Immunity for Emergency Care.* Your Reference Committee approves this section of the report as presented.

Mr. Speaker, I move the adoption of this portion of the report.

7. *Radiation Control.* In conjunction with this section of the report, your Reference Committee considered the report contained in the 1962 House of Delegates HANDBOOK, pages 74-75, as referred by the Speaker of the House. Your Reference Committee recommends that this very active Committee on Radiation Control continue its study and activities to achieve the necessary legislative action.

Mr. Speaker, I move the adoption of this portion of the report.

8. *Professional Corporations.* Your Reference Committee considered a memorandum from Mr. Throckmorton, legal counsel for the Iowa Medical Society, to the Committee on Legislation. In line with the request to establish broad policy with respect to the position of the Iowa Medical Society on the Keogh Bill and proposed Iowa legislation authorizing the formation of "professional corporations," the Reference Committee reports as follows:

That legislative support for the Keogh Bill should be as strong as possible within the limits of priority as dictated by the efforts required to defeat King-Anderson type legislation; that the Iowa Medical Society oppose the corporate practice of medicine for any purpose. The establishment of medical corporations regardless of basic intent or purposes would jeopardize this well-established, basic, ethical principle. In addition, the Internal Revenue Service of the Federal Government has published no policy as regards the tax relief available by the formation of such corporation.

Considering the above reasons, along with such obvious pitfalls as compulsory membership in the Social Security System for members of such corporations, your Reference Committee recommends that the Iowa Medical Society will remain outside of such legislative activity. The Committee on Legislation should be directed to follow developments closely and recommend changes in this policy to the Executive Council and/or the House of Delegates as the situation progresses, in order to provide protection for the Iowa Medical Society if such legislation is forthcoming from other sources.

Mr. Speaker, I move the adoption of this portion of the report.

MISCELLANEOUS MATTERS

1. *Iowa County Medical Examiners.* Your Reference Committee recommends adoption of this section of the Supplemental Report of the Committee on Legislation without change.

Mr. Speaker, I move the adoption of this portion of the report.

2. *Iowa Physicians Political League.* This section of the Supplemental Report already has been carried out by the House of Delegates in its initial session.

At this time, your Reference Committee considered Resolution 15, from Buena Vista County, and recommends its adoption as follows:

"*Resolved,* that the officers and district chairmen of the Iowa Physicians Political League be highly commended for their unselfish devotion to the cause of medicine and for their success in creating an effective means whereby the doctors of Iowa may exert a significant influence on the political activities of the state and nation."

It should be noted that the supporting testimony received by the Reference Committee concerning this Resolution was unanimous.

Mr. Speaker, I move the adoption of this portion of the report.

FINAL PORTION OF THE SUPPLEMENTAL REPORT OF THE COMMITTEE ON LEGISLATION

In conjunction with the final section of the report, the Reference Committee also considered Resolution 18 from Johnson County and Resolution 22 from Jasper County.

In the Supplemental Report, the word "insurance," occurring on two occasions in the phrase "compulsory health insurance," shall be changed to "scheme"—thus reading "compulsory health scheme." The Reference Committee omits the "WHEREAS" concerning the Kerr-Mills Law and substitutes the following:

WHEREAS, the Iowa Medical Society reaffirms its support of legislation for the medical care of the aged based on need, coupled with the medical profession's longstanding policy of providing competent medical care regardless of ability to pay, be it therefore

Resolved, that the members of the Iowa Medical Society affirm their opposition to H.R. 4222 and other present and future bills embodying the compulsory health scheme principle, and that the Iowa Senators and Representatives now in the Congress of the United States be and are hereby respectfully requested to employ every effort and persuasion to prevent the enactment of such legislation.

Your Reference Committee feels that the intent of Resolutions 18 and 22 is encompassed in the above and that therefore no action is necessary.

Mr. Speaker, I move the adoption of this portion of the report.

SUPPLEMENTAL REPORT OF THE SUBCOMMITTEE ON MEDICAL SERVICES TO THE INDIGENT

Your Reference Committee considered this report in conjunction with Resolutions 12 and 13 from Fayette County.

Resolution 12, dealing with the lack of constitutionality of the Vendor Payment Program is not pertinent as the constitutionality of this Program already has been sustained. Therefore, no action is required.

Mr. Speaker, I move the adoption of this portion of the report.

Your Reference Committee noted that there were fewer resolutions, fewer delegates in attendance, less testimony, and in general, less interest in the Vendor Payment Program at this hearing than at any time since its 1958 inception. While the testimony offered against continuance of this program aroused obvious sympathy in the listeners and in the members of the Reference Committee, it should be noted in all fairness that no new information was brought forth and no new reason was given which would allow your Reference Committee to recommend a change in the existing policy of the Iowa Medical Society as regards this program.

Therefore, your Reference Committee recommends acceptance of the Supplemental Report of the Subcommittee on Medical Services to the Indigent.

Mr. Speaker, I move the adoption of this portion of the report.

Concerning Resolution 13, calling for the discontinuance of the Vendor Payment Program, your Reference Committee recommends that no action be taken in view of the immediately preceding portion of this report.

SUPPLEMENTAL REPORT OF THE COMMITTEE ON MENTAL HEALTH AND RESOLUTION 17

Your Reference Committee received testimony supporting this report and pointing out that in the field of mental health federal encroachment and control are progressing rapidly. Contained in the Supplemental Report from this Committee is a Resolution reading as follows:

"*Be It Resolved* that the Iowa Medical Society House of Delegates oppose the proposed position of the AMA Council on Mental Health for continued expansion of Federal Government assistance to states as concerns medical care of the mentally ill and emotionally disturbed and that the delegates from the Iowa Medical Society to the AMA be instructed to express this opposing sentiment at the next annual meeting of the American Medical Association."

Your Reference Committee is in full accord with this Resolution.

Mr. Speaker, I move the adoption of this portion of the report.

Resolution 17 from Cerro Gordo County, was considered at this time. This Resolution calls for a physician survey of state institutions for the retarded and further calls for participation in the supervision of said institutions either by membership on the State Board of Control or in an advisory capacity thereto. Testimony received by this Committee indicates that such survey is either completed or near completion, and that members of this Society already serve in such advisory capacity. Reports indicate that this advisory group wishes to continue in such capacity rather than strive for membership on the State Board of Control. Therefore, your Reference Committee recommends that no action be taken on this Resolution.

Mr. Speaker, I move the adoption of this portion of the report.

HANDBOOK REPORT OF THE MEDICO-LEGAL COMMITTEE AND INFORMATIONAL MEMORANDUM ON VEXATIOUS LITIGATION PROVIDED BY MARION COUNTY MEDICAL SOCIETY

Your Reference Committee unanimously approved the statement of the Medico-Legal Committee printed in the 1962 House of Delegates HANDBOOK, on pages 35-36. The conclusion of this statement is that the proposed legislation has merit and should be sincerely backed by the Iowa Medical Society. Your Reference Committee wholeheartedly concurs with this view.

Mr. Speaker, I move the adoption of this portion of the report.

SUPPLEMENTAL REPORT OF THE GRIEVANCE COMMITTEE

Your Reference Committee recommends the adoption of this report and further recommends that every member of the Iowa Medical Society carefully read this very informative report.

Mr. Speaker, I move the adoption of this portion of the report.

SUPPLEMENTAL REPORT OF THE SUBCOMMITTEE ON ADOPTION

Your Reference Committee, after receiving considerable testimony and recognizing the intensive efforts of this Committee over the past two years, recommends acceptance of this report.

Mr. Speaker, I move the adoption of this portion of the report.

RESOLUTION 20 FROM FAYETTE COUNTY AND RESOLUTION 2 FROM UNION COUNTY

Both Resolutions pertain to the so-called Liberty Amendment to the United States Constitution. Resolution 20 calls for an educational program from the Iowa Medical Society, and Resolution 2 calls for the instruction of the delegates of the Iowa Medical Society to the American Medical Association to support this amendment. Your Reference Committee feels that while such a course of action might well be in keeping with the feelings of a majority of the membership, each physician, whether he be Democrat or Republican, liberal or conservative, should be free to form his own opinion of this proposed amendment. Your Reference Committee recommends that no action be taken on these Resolutions.

Mr. Speaker, I move the adoption of this portion of the report.

Mr. Speaker, I move the adoption of this report as a whole.

In conclusion, I wish to express my deep appreciation to the members of this Reference Committee for their patience and devotion to duty. It has been a privilege to serve with such men.

Respectfully submitted,
K. H. STRONG, M.D., *Chairman*
L. D. CARAWAY, M.D.
J. W. GAUGER, M.D.
N. W. IRVING, M.D.
C. N. HYATT, M.D.

RELATIVE VALUE

The Reference Committee on Relative Value Study met in open session to consider the Relative Value Study Committee's Supplemental Report which consists of six sections: 1) A two-page Supplemental Report, 2) Introduction to the Iowa Relative Value Schedule, 3) Section on Medicine, 4) Section on Surgery, 5) Section on Radiology, and 6) Section on Pathology Including Laboratory.

Mr. Chairman, with your permission, we will consider the above six sections individually. First will be the two-page Supplemental Report of the Relative Value Study Committee which each Delegate received in the original packet distributed on Sunday. It should be mentioned that the bulk of the Supplemental Report was not considered by our Reference Committee but was referred to the Judicial Council. The Judicial Council, sitting as a reference committee, will report its recommendations regarding "Cooperative Care of the Surgical Patient" and necessary in-hospital care prior to surgery. We will defer a motion to adopt the two-page Supplemental Report until each section has been considered.

The only change recommended in the Introduction to the Iowa Relative Value Index consists of a wording change on the next to last page, final paragraph, second sentence, which now reads, "This fact is stressed by a statement on each page of the Index to the effect that, 'This is NOT a Fee Schedule—Physician Compliance Optional.'" The Committee recommends that this sentence be changed to read, "This fact is stressed by a statement on the title page of each section to the effect. . . ." The Committee feels it is not necessary to list this statement on each page of the Index and that stating it on the title page of each section of the Index will be sufficient.

Mr. Speaker, I move the adoption of this portion of the report.

To facilitate the handling of this voluminous report, individual spokesmen from the IMS Relative Value Study Committee (Medicine, Surgery, Radiology, and Pathology Including Laboratory) discussed the background of each section and gave the Committee's thinking on each section. Discussion was held on each section and everyone wishing to do so was given an opportunity to be heard. After conclusion of the open hearings, the Reference Committee adjourned into Executive Session and discussed the points that had been raised during the hearings. A few changes in individual procedures and unit values are being recommended by the Committee. In order to conserve the time of the House of Delegates, your Committee will only list the individual changes that are recommended for each section. Before requesting adoption of each

section, it may be appropriate for specific questions to be asked by individual members of the House which the Reference Committee, members of the Relative Value Study Committee and staff personnel will endeavor to answer.

We will discuss these by section, if the House will permit us to do so.

SECTION ON MEDICINE

On the first page, "General Information and Instructions," item 6, it is recommended that the second sentence be replaced by the following: "When warranted by the necessity of SUPPLEMENTAL SKILLS, values for services rendered by two or more physicians will be allowed. Written report to be submitted upon request."

The following individual procedures were discussed in open hearings and in Executive Session and the Committee recommends the following changes:

Procedures No. 9011 INITIAL home visit, ROUTINE, new patient or new illness, history and examination. Increase from 2 to 2.6 units.
Procedures No. 9012 INITIAL home visit, COMPLETE diagnostic history and physical examination. Limit 7 units.

The above are the only two changes recommended in this section.

Mr. Speaker, I move the adoption of this section of the report.

SECTION ON SURGERY

It should be noted that the "General Information and Instructions" section includes item No. 3 regarding in-hospital care prior to surgery and also a section on "Surgical Assistants." These items have been referred to the Judicial Council and any changes will depend on the Judicial Council's report.

The first change in the "Surgery" section recommended by the Committee is:

Procedure No. 0250 Wounds, small (suture of recent small wounds requiring closure), up to 1 inch. It is the consensus of the Committee that this should be increased from 2 to 3 units. In addition, since there was no consideration for location of the repair, it is recommended that the following sentence be inserted immediately after procedure 0251; (Wounds of the mouth, nose, ears and lips . . . 1½ times the listed value for the above two procedures).

Other changes:

Procedure No. 3310 Proctosigmoidoscopy, diagnostic, initial. Increase from 2 to 3 units.
Procedure No. 3312 with biopsy, initial. Increase from 4 to 5 units.
Procedure No. *4300 Biopsy, prostate, needle, single or multiple. An asterisk should be added preceding the procedure number.
Procedure No. 4486 Colpoperineoplasty, posterior vaginal wall, repair of rectocele and perineoplasty; pelvic floor repair. Decrease from 40 units to 30 units.

Mr. Speaker, I move the adoption of this portion of the report.

OBSTETRIC PROCEDURES

A word of explanation for the series of changes in the portion of the Index on "Obstetric Procedures" is in order. It is felt by the Reference Committee that while the Relative Value Index is not a fee schedule, previous indices are presently serving as a basis for arriving at fees under programs such as Medicare, Vendor Payment, Blue Shield, etc.

The unit values quoted by the Relative Value Study Committee for this particular section would result in a considerable decrease in the relative values now in effect under the present Medicare Program. Thus, if it remains unchanged, could seriously jeopardize the present Medicare Program since almost 80 per cent of the money expended under Medicare is for obstetrical procedures.

It is imperative to call to the attention of the House of Delegates that even though the Reference Committee is recommending an increase in many of the procedures listed in the obstetrical section, the Committee's recommendations will merely restate the relative values included in the old Iowa Relative Value Schedule (Red Book) and will be substantially lower than the present unit values listed in the Iowa Unit Fee Index (Gray Book). Therefore, after due consideration of all the facts, the changes recommended below are presented by the Committee:

Procedure No. 4821 Obstetrical delivery, including antepartum and postpartum care. Increase from 20 units to 25 units.
Procedure No. 4822 excluding antepartum and postpartum care. Increase from 10 units to 15 units.
Procedure No. 4823 Forceps Delivery by Consultant. Change the nomenclature to read, "Delivery by Consultant—additional."
Procedure No. 4824 First Trimester (first 14 weeks of pregnancy.) Increase from 2 units to 2.5 units.
Procedure No. 4825 Second Trimester (next 13 weeks of pregnancy.) 25 per cent of total amount above. Increase from 2 to 2.5 units.
Procedure No. 4826 Third Trimester (after 27 weeks of pregnancy.) 50 per cent of total amount above. Increase from 3 to 5 units.
Procedure No. 4827 Obstetrical delivery (including complete postpartum care.) Increase from 13 to 20 units.
Procedure No. 4828 Postpartum care (performed by physician other than physician performing delivery). Should read, "Postpartum care (performed by physician other than physician performing delivery—out of hospital) and should be decreased from 3 to 2 units.

Mr. Speaker, I move adoption of this portion of the report.

The only other changes recommended in the Surgical Section are as follows:

Procedure No. 5503 Scleral resection. It was suggested during the open hearings that this item be deleted and the Committee so recommends.
Procedure No. 5630 Reattachment of retina, electro-coagulation, scleral resection, buckling or partial tubing. The 60 units should be deleted and the words "by report" inserted.

It might be mentioned that the change in procedure No. 5630 is an example of an extremely technical procedure done by only a handful of men in the State and the Committee accepted their suggestion that this procedure deserves individual consideration.

Mr. Speaker, I move adoption of this portion of the report.

SECTION ON RADIOLOGY

The Committee recommends the following changes in the Section on Radiology:

Procedure No. 7575 Uterus corpus. Should be amended to read, "Uterus corpus, complete course, radium and X-ray . . . 60 units."
After Procedure No. 7576, insert Procedure No. 7577 Uterus corpus, radium only . . . 30 units.

In addition, to be consistent with unit values listed in the Surgical Section for identical procedures, the following changes are recommended:

Procedure No. 7227 with injection of contrast medium, add. Increase from 8 to 10 units.
Procedure No. 7229 with injection of contrast medium, add. Increase from 8 to 10 units.

Mr. Speaker, I move adoption of this portion of the report.

SECTION ON PATHOLOGY INCLUDING LABORATORY

The Section on Pathology Including Laboratory was accepted intact except for the following two deletions. The Committee unanimously recommends the deletion of:

Procedure No. 8903 Forwarding anatomical pathology specimen to reference laboratory.

Procedure No. 8904 Forwarding clinical pathology specimen to reference laboratory.

Mr. Speaker, I move adoption of this portion of the report.

We will now return to the original two-page Supplemental Report of the Relative Value Study Committee, most of which, as you recall, was referred to the Judicial Council.

Your Reference Committee recommends the adoption of the first four recommendations included in the Supplemental Report, which are:

1. The title of the new Index—"Iowa Relative Value Index."
2. The Index should be "Copyrighted."
3. The Index should be of similar size and format as the 1960 California Relative Value Studies.
4. The cover of the new Index should be green.

Recommendation No. 5 should be amended to conform with the recommendation made earlier in the report regarding the phrase, "This is not a fee schedule; physician compliance optional." Therefore, in recommending No. 5, delete the words "Each double page" and insert the words, "The title page of each section."

Mr. Speaker, I move the adoption of this portion of the report.

Mr. Speaker, I move the adoption of the report as a whole, as amended.

The Reference Committee unanimously recommends that the House of Delegates and the entire IMS give a vote of thanks to the Relative Value Study Committee. Perhaps no committee in the history of the Iowa Medical Society has put in such long hours, been subjected to so much pressure and has done such a difficult job. The Chairman wishes to thank the Committee members and the individuals who participated in the open discussion.

Respectfully submitted,
C. P. HAWKINS, M.D., *Chairman*
M. E. BARRENT, M.D.
K. R. CROSS, M.D.
P. E. GIBSON, M.D.
P. K. HUGHES, M.D.
J. T. MCMILLAN, III, M.D.
G. E. MONTGOMERY, M.D.

JUDICIAL COUNCIL

Three supplemental reports of committees were referred by the House of Delegates to the Judicial Council, acting as a Reference Committee.

1. The Supplemental Report of the Relative Value Study Committee recommended that in the statement on cooperative care of the surgical patient quoted on page 1 of that report, the paragraph now numbered (1) should be eliminated from the section of the Relative Value Index dealing with surgical assistants, because substantially the same statement appears as item No. 3 in the General Information and Instructions preceding the surgery section of the Index, and properly belongs there. The Reference Committee recommends the approval of that change, since the paragraph in question deals with medical care rather than with surgical assistants, but recommends that the words "except as follows" be added to the initial sentence in that statement on cooperative care of the surgical patient, so that it may read: "The entire listed surgical fee shall be paid to the operating surgeon as designated by the hospital record except as follows."

Mr. Speaker, I move the acceptance of this section of the Reference Committee's Report.

2. The Reference Committee considered the Supplemental Report of the Podiatry Committee, a group that was established to gather information on the present status of men who engage in practice of that sort throughout the country and on the desires of the Iowa podiatrists. The Committee has completed those tasks, and the Reference Committee recommends directing it to discontinue its meetings with the podiatrists until such a time as a unified approach regarding paramedical groups has been formulated either at the state or at the national level.

Mr. Speaker, I move the acceptance of this section of the Reference Committee's Report.

3. The Reference Committee considered the Supplemental Report of the Committee on Osteopathy and the MD/DO Liaison Committee, which outlined several approaches among which the IMS might choose to implement the action of the June, 1961, session of the AMA House of Delegates which permits component societies to decide whether individual osteopaths are entitled to have the cultist label removed.

The Reference Committee recommends that the third method proposed by the Committee on Osteopathy and the MD/DO Liaison Committee be accepted by this House. It is set forth in some detail on page 2 of the Supplemental Report of those Committees, but can be summarized here as a plan for evaluating the individual osteopathic physician and surgeon as to whether he limits his practice to scientific medicine, and as to his competence and his ethics. The individual thus approved would be freed from the cultist label.

Mr. Speaker, I move the acceptance of this section of the Reference Committee's Report.

Mr. Speaker, I move the acceptance of the Reference Committee's Report as a whole.

Respectfully submitted,
J. E. HOULAHAN, M.D., *Chairman*
C. L. KELLY, JR., M.D.
D. H. KING, M.D.
M. A. BLACKSTONE, M.D.
J. W. FERGUSON, M.D.
J. H. SUNDERBRUCH, M.D.
L. V. LARSEN, M.D.
G. E. MCFARLAND, JR., M.D.
C. E. RADCLIFFE, M.D.
K. E. LISTER, M.D.

The following resolutions were adopted by the House of Delegates:

Resolved, that the actions of the Board of Trustees of the Iowa Medical Society from the date of the last annual meeting, to date, be and they hereby are approved, ratified, and confirmed.

Resolved, that the House of Delegates authorize the Board of Trustees to prepare a suitable testimonial to be presented to Dr. Otto N. Glesne in recognition of his outstanding service as President of the Society.

Resolved, that the House of Delegates instruct the secretary to write individual letters to each technical exhibitor who participated in the 1962 Annual Meeting of the Iowa Medical Society, thanking them for their cooperation and support.

The Speaker of the House of Delegates acknowledged the work of the reference committee members and expressed appreciation to them for accepting his invitation to serve. He complimented the staff of the IMS for its assistance in the conduct of the business of the House of Delegates, but especially with that of the reference committees.

The House of Delegates was adjourned by the Speaker at 1:30 p.m.

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THE JOURNAL

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** To take office January 1, 1963

Guy E. McFarland, Jr., Ames, resigned as Councilor, Fifth District, and Ralph L. Wicks, M.D., Boone, was appointed by the Board of Trustees to serve until the 1963 Annual Meeting.

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1962

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as of

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Clapsaddle, Dean W., Clear Lake
Clapsaddle, John G., Burt (L.M.)
Clark, Clayton W., Nashua
Clark, Donald R., Waterloo
Clark, George H., Oskaloosa (A.M.)
Clark, James P., Estherville
Clark, Richardson E., Manchester
Clark, Samuel S., Des Moines
Clark, Thomas D., Knoxville
Clary, William H., Longmont, Colorado (L.M.)
Clasen, Henry W., Littleton, Colorado (L.M.)
Clemens, Albert L., Des Moines
Clifton, James A., Iowa City
Closson, Charles L., Walker (L.M.)
Cloud, Arthur B., Marshalltown
Cmeyla, Patrick M., Sioux City
Cobb, Elliott A., Cedar Rapids
Coble, Rollo J., Lake Park
Cochrane, Allen M., Perry
Coddington, James H., Humboldt
Cody, William E., Deerfield Beach, Florida (L.M.)
Coffey, James L., Emmetsburg
Coffman, Eugene W., Dubuque
Cogley, John P., Council Bluffs
Cohen, Sidney A., Council Bluffs
Colbert, Lawrence D., Royal
Cole, Charles E., Cherokee
Cole, Elmer J., Woodbine (L.M.)
Cole, Fern N., Iowa Falls
Coleman, Francis C., Des Moines
Collignon, Urban J., Council Bluffs
Collins, Alice J., Des Moines
Collins, John F., Davenport
Collins, Loren E., Sioux City
Collins, Robert M., Council Bluffs
Collison, Robert M., Oskaloosa
Comeau, Adeline E., Clarinda
Compton, John D., Edgewood
Conklin, Dwight E., Iowa City
Conklin, Eugene V., Dubuque
Conkling, Russell W., Newton
Conley, Rollin M., Perry
Conlon, James B., Council Bluffs
Conmey, Roy M., Sergeant Bluff (L.M.)
Connell, John, Des Moines (A.M.)
Connelly, Edgar J., Dubuque
Conner, John D., Nevada
Connor, William E., Iowa City
Conzett, Donald C., Dubuque
Cook, Kenneth G., Fairfield
Cook, Stuart H., Rock Rapids
Cooper, Clark N., Waterloo
Cooper, Dean C., Fort Dodge
Cooper, Gladys A., Lansing, Michigan (L.M.)
*Cooper, Jay C., Villisca (L.M.)
Cooper, Raymond E., Keokuk
Cooper, Wayne K., Cedar Rapids
Coppoc, Loran E., Ottumwa
*Corbin, Sylvannus W., Corydon (A.M.)
Corcoran, Thomas E., Des Moines
Coriden, Thomas L., Sioux City
Corn, Henry H., Des Moines
Cornish, James A., Storm Lake
Cornish, Lawrence R., Indianola
Corton, Richard V. M., Waterloo
Couchman, Mary Pucci, Mount Pleasant
Couchman, Phillip G., Mount Pleasant
Coughlan, Charles H., Fort Dodge
Coughlan, Daniel W., Des Moines
Coulson, Forest H., Burlington
Cox, Russell L., Estherville
Crabb, Dayrle N., Denison
Crandall, Jack S., Marshalltown
Crane, David D., Shelby
Crawford, Robert H., Burlington
Crawford, W. McCulloch, Burlington
Crawford, William A., Iowa City
Cressler, Frank E., Churdan (L.M.)
Cretzmeyer, Francis X., Emmetsburg (L.M.)
Crew, Arthur E., Marion (L.M.)
Crew, Philip I., Cedar Rapids
Croker, Mary Ann, Manchester
Cromwell, James O., Des Moines
Cronkleton, Thomas E., Davenport
Cross, Donald L., Boone
Cross, Kenneth R., Iowa City
Crossley, J. Wesley, Osage
Crow, George B., Burlington (L.M.)
Crowley, Daniel F., Jr., Des Moines
Crowley, Paul J., Davenport
Croxdale, Edward L., Villisca
Culp, David A., Iowa City
Cunnick, Paul C., Davenport
Cunningham, Glenn D., Davenport
Cunningham, Melvin B., Norwalk
Curtis, Dean, Chariton
Cusick, George W., Davenport

Dagle, Charles L., Fort Dodge
Dahl, Harry W., Des Moines
Dahlbo, John E., Sutherland
Dahlquist, Ralph M., Decorah
Dalager, Robert D., Ottumwa
Dalbey, Glenn M., Traer
Danielson, May, Clinton
Dankle, Willis K., Cresco
Dannenbring, Forrest G., Fort Dodge
Daut, Richard V., Davenport
Davey, William P., Sioux City
Davidson, Thorald E., Mason City
Davis, John R., Iowa City
Dawson, Emerson B., Fort Dodge
Dawson, Orville L., Burlington
Dawson, Robert J., Graettinger
Day, Philip M., Oskaloosa (L.M.)
Deakins, Martin L., Logan
Deal, Clyde F., Elkader
Dean, William F., Osceola (L.M.)
Deaton, Helen J., Iowa City
DeBacker, Leo J., Jr., Iowa City
Decker, Charles E., Davenport
Decker, Henry G., Des Moines
Decker, Jay C., Sioux City (L.M.)
DeGowin, Elmer L., Iowa City
deGravelles, William D., Jr., Des Moines
De Kraay, Warren H., Iowa City
DeLashmutt, Edward J., Fort Madison
Demaree, Chester, Lacona (L.M.)
De Meulenaere, John C., Grinnell
Dempewolf, Robert D., Bellevue
Dennert, Walter G., Boone
Denser, Clarence H., Jr., Des Moines
Deranleau, Robert F., Perry
DeShaw, Earl H., Monticello
Des Marias, Varina, Grundy Center
Devine, Arthur W., Waterloo
Dewees, Frank L., Newton Square, Pennsylvania
DeYoung, Ward A., Glenwood
Diamond, Bernard, Waterloo
Dick, Fred, Jr., Waterloo
Dickens, James H., Des Moines
Diddy, Keith W., Perry
Dieckmann, Merwin R., Waterloo
Dierker, LeRoy J., Fort Madison
Dimsdale, Lewis J., Sioux City
Ditto, Boyd L., Burlington (L.M.)
Dixon, John B., Mason City
Doane, Grace O., Des Moines (A.M.)
Dohnalek, Donald W., Harlan
Dolan, Albert M., Evansdale
Dolan, T. Robert, Decorah
*Dolmage, George F., Buffalo Center (L.M.)
Donahue, James C., Jr., Davenport
Donaldson, James A., Iowa City
Donlin, Robert E., Harlan
Donnelly, Madelene M., Des Moines
Donohue, Edmund S., Sioux City
Doolittle, Russell C., Clearwater Beach, Florida (L.M.)
Doran, John R., Ames
Dorner, Ralph A., Des Moines
Dorsey, Thomas J., Fort Dodge (L.M.)
Doss, W. Norman, Leon
Douglas, Clarence E., Belle Plaine
Down, Howard I., Sioux City
Downey, Eugene M., Guttenberg
Downing, Arthur H., Des Moines
Downing, John S., Cedar Rapids
Downing, Leroy M., Cedar Rapids (L.M.)
Downing, Lloyd L., Cherokee
Downing, Wendell L., LeMars
Downs, Vernon S., Ottumwa (A.M.)
Dressler, John B., Ida Grove
Drew, Edward J., Des Moines
Drier, William C., Waterloo
Driver, Richard W., Waterloo
Drown, Roger E., Fort Dodge
Dubansky, Marvin H., Des Moines
★Duffie, Edward R., Port Hueneme, California
Dulin, Evelyn H., Iowa City (A.M.)
Dulin, John W., Iowa City
Dulin, Tarana J. G., Iowa City (L.M.)
Duncan, Ellis, Fremont
Dunlay, Robert W., Iowa Falls
Dunlevy, James H., Fairfield
Dunn, Dale E., Estherville
Dunn, Francis C., Cedar Rapids
Dunn, Robert C., Fort Dodge
Dunner, Ada, Des Moines
Dusdieker, Stanley W., Des Moines
Dutton, Dean A., Van Horne
Dwyer, Robert E., Clinton
Dyll, James W., Iowa City
Dyson, James E., Phoenix, Arizona (A.M.)
Dyson, Ralph E., Des Moines

Eastburn, Harvey B., Burlington
Eaton, Robert C., Clarion
Ebinger, Edward W., Ottumwa
Echternacht, Arthur P., Fort Dodge
Eckart, Emile P., Fort Dodge
Eckstein, John W., Iowa City
Edelman, David L., Kennewick, Washington
Edgerton, Winfield D., Davenport
Edington, Frank D., Spencer
Edwards, Charles V., Council Bluffs
Edwards, Charles V., Jr., Council Bluffs
Edwards, John F., Clinton
Edwards, Ralph R., Centerville
Egan, Thomas J., Bancroft
Egbert, Daniel S., Fort Dodge
Egermayer, George W., Elliott (L.M.)
Eggert, Delmer C., Iowa City
Eggleston, Alfred A., Burlington
Egli, Eugene E., Fairfield
Ehlers, Gunther, Des Moines
Ehrenhaft, Johann L., Iowa City
Eicher, Charles R., Iowa City
Eiel, John O., Osage

Eisenach, John R., Shenandoah
Ekart, Paul I., Ottumwa
Eklund, Harold E., Des Moines
Eller, Lancelot W., Kanawha
Elliott, Olin A., Des Moines
Ellis, Howard G., Des Moines
Ellison, George M., Clinton
Ellsworth, H. Charles, Cherokee
Ellyson, Craig D., Waterloo
Elmer, Norman J., Sumner
Ely, Lawrence O., Des Moines
Emanuel, Dennis G., Ottumwa
Emerson, Donald D., Ottumwa
Emerson, Edward L., Muscatine
Emmons, Marcus B., Clinton
Emmons, Margaret S., Clinton
Emmons, Richard O., Clinton
Emond, Leonard D., Dubuque
Eneboe, Edward M., Hawarden
Engelmann, Andrew T., Sioux City
England, William J., Griswold
Enna, Melchior D., Dumont
Ennis, Harry H., Manchester (L.M.)
Entringer, Albert J., Dubuque
Entz, F. Harold, Waterloo
Erickson, Ernest D., Sioux City
Ericsson, Martin G., Cedar Falls
Erikson, Roland E., Davenport
Erps, William E., Storm Lake
Esders, Martin S., DeWitt
Estes, Maurice, Cedar Rapids
Evans, John E., Winterset
Evans, William I., Iowa City
Evers, Alvin E., Pella
Everson, Dale M., Shell Rock

Faber, Donald K., Oelwein
Faber, Luke A., Dubuque
Faber, Luke C., Iowa City
Fail, Charles S., Adel
Fangman, Charles A., Carroll
Farago, Denes S., Arnolds Park
Farlow, Charles T., Farnhamville (L.M.)
Farnsworth, Harold E., Storm Lake
Farrage, Edward R., Council Bluffs
Fatland, John L., Des Moines
Faust, John H., Manson
Fee, Charles H., Denison
Feightner, Robert L., Fort Madison
Feldick, Harley G., Buffalo Center
Fellows, Joseph G., Ames
Felter, Allan G., Van Meter
Fenton, Charles D., Bloomfield
Fenton, Robert L., Centerville
Ferengul, Ellen E., Des Moines
Ferguson, Edward C., III, Iowa City
Ferguson, John W., Newton
Ferguson, R. Paul, Lake City
Ferlic, Rudolph J., Carroll
Fesenmeyer, Charles R., Davenport
Fickel, Jack D., Red Oak
Field, Charles A., Rochester, Minnesota
Field, Grace E. W., Juneau, Alaska
Fieseler, Walter R., Okoboji
Fieselmann, George F., Spencer
Fillenwarth, Floyd H., Charles City
Fisch, Roman J., LeMars
Fischer, Harry W., Iowa City
Fisher, June M., Iowa City
Fisher, William A., Creston
Fishman, Harlow J., Cherokee
Fisk, Charlotte, Des Moines
Fitz, Annette E., Iowa City
Flannery, Francis E., Cedar Rapids
Flater, Norman C., Floyd
Flatt, Adrian E., Iowa City
Flocks, Rubin H., Iowa City
Floersch, Eugene B., Council Bluffs
Flynn, Charles H., Cheyenne, Wyoming
Flynn, Gordon A., Davenport
Flynn, James R., Jr., Cedar Rapids
Foley, Robert J., Davenport
Foley, Walter E., Davenport
Foley, Walter E., Jr., Davenport
Folsom, James C., Mount Pleasant
Fomon, Samuel J., Iowa City
Fordyce, Frank W., Johnston (A.M.)
Forsythe, Dorothy C., Newton
Forsythe, Frank E., Newton
Foss, Robert H., Des Moines
Foster, Morgan J., Cedar Rapids
Foster, Warren H., Clinton
Foster, Wayne J., Cedar Rapids
Foulk, Frank E., Des Moines (L.M.)
Fowler, Willis M., Iowa City
Fox, Charles I., Port Isabel, Texas (L.M.)
Fox, Ray A., Charles City
Fox, Stephan, Ottumwa
Franchere, Chetwynd M., Mason City
Franey, William E., Cedar Rapids
Frank, Louis J., Sioux City (A.M.)
Frank, Owen L., Maquoketa
Fransco, Peter P., Ruthven
Fraser, James B., Des Moines
Fraser, John H., Monticello
Frech, Raymond F., Newton
Free, Richard M., Independence
Freed, David A., West Union
French, Royal F., Marshalltown (L.M.)
French, Valiant D., Cedar Falls (A.M.)
French, Vera V., Bettendorf
Frenkel, Hans S., Clarinda
Friday, Walter C., Burlington
Frink, Lyle F., Spencer
From, Paul, Des Moines
Frost, Loraine H., Iowa City
Fry, Gerald A., Vinton
Fuchs, Edwin M., New Orleans, Louisiana
Fuerste, Frederick, Jr., Dubuque
Fuller, Dale E., Iowa City
Fuller, Lyle R., Garner
Funk, David C., Iowa City
Furumoto, Kiyoshi, Keosauqua

Gacusana, Jose M., St. Louis, Missouri
Galinsky, Leon J., Des Moines
Gallagher, John P., Oelwein
Gamet, Elmo E., Lamoni
Gangeness, Leonard G., Des Moines
Gann, Edward R., Sigourney
Gannon, James, Laurens
Gantz, A. Jay, Greenfield
Ganzhorn, Harold L., Mapleton
Garber, Keith A., Corydon
Gardner, Harold O., Waterloo
Gardner, John R., Lisbon (L.M.)
Garland, John C., Marshalltown
Garred, John L., Whiting
Garred, William P., Onawa
Garry, Patrick E., Dyersville
Garvy, Andrew C., Iowa City
Gatzke, Laurence D., Muscatine
Gauchat, Robert D., Iowa City
Gauger, John W., Early
Gaukel, Leo A., Onawa
Gault, James B., Creston
Gearhart, George W., Springville (L.M.)
Gee, Kenneth J., Shenandoah
Gehring, John V., Cherokee
Gelfand, Arthur B., Sioux City
Gelman, Webster B., Iowa City
George, Louis A., Remsen
Gerard, Russell S., II, Waterloo
Gerken, James F., Waterloo
German, Robert G., Gladbrook
Gernsey, Merritt N., Long Beach, California (L.M.)
Gerstman, Herbert, Marion
Gessford, Howard H., George
Getty, Everett B., Primghar
Gibbs, George M., Burlington
Gibson, Chelsea D., Sac City
Gibson, Douglas N., Des Moines
Gibson, Paul E., Des Moines
Gibson, Preston E., Davenport
Giegerich, Walter F., Atlantic
Gildea, Dorothy J., Davenport
Giles, Francis E., Fort Dodge
Giles, W. Clark, Council Bluffs
*Gilfillan, Clarence D. N., Pomona, California
Gilfillan, Earl E., Bloomfield
Gilfillan, Edwin O., Bloomfield
Gilfillan, Homer J., Jr., Bloomfield
Gillett, Francis A., Oskaloosa (L.M.)
Gillett, R. Giles, Sigourney
Gillies, Carl L., Iowa City
Gilloon, James R., Dubuque
Gingles, Earl E., Onawa
Ginzberg, Fanny T., Cherokee
Gittins, Thomas R., Sioux City
Gittler, Ludwig, Fairfield
Gius, John A., Iowa City
★Givler, Robert L., Dayton, Ohio
Glenn, David H., Eldora
Glesne, Otto N., Fort Dodge
Glissman, Jean B., Des Moines
Glomset, Daniel A., Des Moines
Goad, Robley R., Muscatine
Godbey, Maunis E., Cedar Rapids
Goddard, Chester R., Iowa City
Godfrey, James T., Jr., Cherokee
Goebel, Clarence J., Sioux City
Goebel, Kenneth E., Council Bluffs
Goen, Edwin J., Charles City
Goenne, Richard E., Davenport
Goenne, William C., Sr., Davenport (L.M.)
Goerlich, Berthold H., Iowa City
Goggin, John G., Ossian
Goldberg, J. Eugene, Waterloo
Goldberg, Louis, Des Moines
Goldman, Bernard R., Davenport
Goodenow, Sidney B., Colo (L.M.)
Goodman, Lawrence O., Marshalltown
Goplerud, Clifford P., Iowa City
Gordon, Arnold M., Des Moines
Gorrell, Ralph L., Clarion
Gorton, Virginia E. Gross, Mount Pleasant
Goswitz, Helen V., Iowa City
Gottsch, Edwin J., Shenandoah
Gower, Walter E., Fort Dodge
Graether, John M., Marshalltown
Graham, James W., Sioux City
Graham, Judith, Iowa City
Graham, Thomas C., Iowa Falls
Grahek, Lawrence J., Oskaloosa
Grandinetti, Arthur F., Oelwein
Grandon, Eugene L., Iowa City
Grant, John G., Ames
Grau, Amandus H., Denison
Graves, John P., Dubuque
Gray, Gordon W., Davenport
Gray, John F., Melcher (L.M.)
Gray, Ralph E., Eldora
Gray, Lawrence R., Ankeny
Greco, Louis R., Jr., Boone
Green, Don C., Des Moines
Green, Edward W., Coralville
Green, John W., Jr., Des Moines
Greenblatt, Jerald, Cedar Rapids
Greenhill, Solomon, Des Moines
Greenleaf, John S., Iowa City
Greteman, Theodore J., Dubuque
Griesy, Carl V., Rock Rapids
Griffin, Charles C., Dyersville
Griffin, Robert E., Sheldon
Griffith, William O., Council Bluffs
Griffith, Wylie H., Clinton
Groben, Elmer S., Columbus Junction
Grossman, Milton D., Sioux City
Grossman, Raymond S., Marshalltown
Grossmann, Edward B., Orange City
Grubb, Merrill W., Galva
Grundberg, Gerhard, Dows
Gude, Herbert E., Iowa Falls
Guggenheim, Paul, Council Bluffs
Gugle, Lloyd J., Ottumwa
Guiang, Sixto F., Burlington
Gurau, Henry H., Des Moines
Gustafson, John E., Des Moines
Gutch, Roy C., Chariton (L.M.)
Gutenkauf, Charles H., Des Moines

Hach, Felix T., Ankeny
Hagen, Edward F., Decorah
Haines, Diedrich J., Des Moines
Hake, Dexter H., Knoxville
Halbert, Helen E., Davenport
Hale, Albert E., Mason City
Hall, Bonnybel A., Maynard
Hall, Cluley C., Maynard
Hall, William E., Des Moines
Hallam, F. Tulley, Des Moines
Hallberg, Harold C., Oelwein
Halpin, Lawrence J., Cedar Rapids
Hamilton, Ben C., Jefferson (L.M.)
Hamilton, Cecil V., Ames
Hamilton, Henry E., Iowa City
Hamilton, William K., Iowa City
Hammer, Richard W., Des Moines
Hansell, William W., Des Moines
Hansen, David M., Cedar Falls
Hansen, Fred A., Red Oak
Hansen, Niels M., Des Moines
Hansen, Robert R., Marshalltown (L.M.)
Hansen, Russell R., Storm Lake
Hanson, Carl A., Waterloo
Hanson, Henry M., Waverly
★Hanson, Paull R., Spokane, Washington
Hanson, Walter N., Mason City
Hanssmann, Irving J., Council Bluffs
Hardin, John F., Bedford
Hardin, Robert C., Iowa City
Harding, Dale A., Eagle Grove
Hardwig, Oswald C., Waverly
Harken, Conreid R., Osceola (L.M.)
Harkness, Gordon F., Davenport (L.M.)
Harms, George E., Norway
Harned, Lewis B., Waterloo
Harper, George E., Fort Madison
Harper, Harry D., Fort Madison
Harper, William H., Jr., Keokuk
Harpring, Alice Jeanne, Davenport
Harris, Herbert H., Sioux City
Harris, Percy G., Cedar Rapids
Harris, Ray R., Dubuque (L.M.)
Hart, Paul V., Des Moines
Hartley, Byron D., Mount Pleasant
Hartman, Frank T., Waterloo (L.M.)
Hartman, Howard J., Waterloo
Hartunian, Edick, Iowa City
Harvey, Glen W., Cedar Rapids
Harwood, Arthur M., Waverly
Hassebroek, Roy J., Orange City
Hastings, Philip R., Waterloo
Hastings, Richard A., Ottumwa

Hathaway, Robert G., Waterloo
Haufe, W. David, Bloomfield
Haugland, Stanley M., Lake Mills
Hausheer, Myron R., Oakland
Havlik, Al J., Tama
Hawkins, Charles P., Clarion
Hayden, Milford D., Cherokee
Hayes, William P., Cedar Rapids
Hayne, Robert A., Des Moines
Hayne, Willard W., Des Moines
Hazlet, Kenneth K., Dubuque
Healy, James D., Fort Madison
Heeren, Ralph H., Des Moines
Heffernan, Chauncey E., Sioux City
Hege, John H., Independence
Hegg, Lester R., Rock Valley
Hegstrom, George J., Ames
Heilman, Robert D., Houston, Texas
Heimann, Verne R., Sioux City
Heine, George W., Cedar Falls
Heise, Carl A., Jr., Jewell
Heise, Harris R., Marshalltown
Heise, Robert H., Story City
Heitzman, Paul O., Cedar Rapids
Helling, Harry B., Fort Madison
Helseth, Carleton T., Des Moines
Henderson, Lauren J., Pomona, California
Henderson, Walker B., Oelwein
Hendricks, Atlee B., Davenport
Hendricks, Clifford A., Cedar Rapids
Hendrickson, Alvin H., Sioux City
Henkin, John H., Sioux City
Henn, Samuel C., Cedar Falls
Hennes, Raphael J., Oxford
Hennessey, John M., Manilla
Hennessy, J. Donald, Council Bluffs
Henningsen, Artemus B., Clinton
Henstorf, Harold R., Shenandoah
Heppelwhite, James W., Des Moines
Herlitzka, Alfred J., Mason City
Herman, John C., Boone
*Herny, Peter M., Prairie City
Herrick, Walter E., Ottumwa
Herrmann, Christian H., Middle
Hersey, Nelson L., Independence
Hertko, Edward H., Des Moines
Hess, John, Jr., Des Moines
Heuermann, Dorothy J., Coulter
Heusinkveld, Henry J., Clinton (A.M.)
Hickenlooper, Carl B., Winterset (L.M.)
Hickey, Robert C., Iowa City
Hickman, Charles S., Centerville (L.M.)
Hicks, Wayland K., Sioux City
Hierschbiel, Ernst A., Iowa City
Hildebrand, Howard H., Ames
*Hill, Don E., Clinton
Hill, Julia Ford, Santa Barbara, California (L.M.)
Hill, Lee F., Des Moines
Hines, Ralph E., Des Moines
Hintz, D. Charles, San Mateo, California
Hirleman, Hal R., Cedar Rapids
Hirsch, Harry N., Sioux City
Hirsch, Michael Robert, Des Moines
Hirst, Donald V., Council Bluffs
Hoak, John C., Iowa City
Hodges, Robert E., Iowa City
Hoffman, Paul M., Tipton (L.M.)
★Hoffman, Robert M., Jacksonville, Florida
Hoffmann, Robert W., Des Moines
Hogenson, George B., Eagle Grove
Hollander, Werner M., Davenport
Hollis, Edward L., Marengo (L.M.)
Holman, David O., Ottumwa
*Holtey, Joseph W., Ossian (A.M.)
Holzworth, Paul R., Des Moines
Hommel, Placido R. V., Elkader
Honke, Edward M., Sioux City
Hooley, John S., Sigourney
Hoover, Ralph S., Waterloo
Hopkins, David H., Des Moines (A.M.)
Hopp, Ralph L., Council Bluffs
Horn, Gilbert O., Cherokee
Hornaday, William R., Des Moines
Hornaday, William R., Jr., Des Moines
Hornberger, John R., Manning
Horsley, Arthur W., Sioux City
Horst, Arthur W., Sioux City
Hosford, Horace F., Burlington
Hostetter, John I., Des Moines
Hostetter, Mary Sparks, Des Moines
Houghton, Earl J., Bettendorf
Houlahan, Jay E., Mason City
Houlihan, Francis W., Ackley
Houser, Cass T., Cedar Rapids (L.M.)
Housholder, Harold A., Winthrop (L.M.)
Howar, Bruce F., Webster City
Howard, Dwayne E., Sioux City
Howard, Lloyd G., Council Bluffs
Howard, William F., Iowa City
Howe, Gerald W., Iowa City
Howell, David A., Dubuque
Howell, Elias B., Ottumwa (L.M.)
Hoyt, John L., Creston
Hruska, Glen J., Belmond
Huber, Robert A., Charter Oak
Hubiak, John, Odebolt
Hudek, Joseph W., Garnavillo (L.M.)
Huey, John R., Cedar Rapids
Huffman, William C., Iowa City
Hughes, Parker K., Des Moines
Hull, Charles N., Des Moines
Hull, Gene I., Des Moines
Hulstra, Hans, Iowa City
Hunt, Van W., Mason City
Hunting, Ralph D., Cedar Rapids
Huntley, Charles C., Avoca
Hurevitz, Hyman M., Davenport
Huston, Daniel F., Burlington
Huston, John, Cedar Rapids
Huston, K. Garth, Des Moines
Huston, Marshall D., Cedar Falls
Huston, Paul E., Iowa City
Hutcheson, Thomas S., Ida Grove
Hutchinson, Roy M., Fort Dodge
Hyatt, Charles N., Corydon

Ihle, Charles W., Norfolk, Nebraska (L.M.)
Ingham, Donald W., Independence
Ingham, Paul G., Mapleton
Ingle, Newell G., Cedar Rapids
Ingraham, David R., Sewal
Ireland, William W., Ottumwa
Irish, John B., Iowa City
Irish, Thomas J., Forest City
Irving, Noble W., Jr., Des Moines
Isham, Robert B., Osage

Jack, Darwin B., Oelwein
Jackson, James Macomber, Fort Bragg, North Carolina (L.M.)
Jackson, James S., Mount Pleasant
Jacobi, Heinz S., New Hampton
Jacobs, Carl A., Sioux City
Jacobs, Edward L., Marshalltown
Jacobs, James P., Iowa City
Jacobs, Richard L., Iowa City
Jacques, Lewis H., Iowa City
Jaenicke, Kurt, Clinton (L.M.)
Jaggard, Robert S., Oelwein
*James, Audra D., Des Moines (A.M.)
James, David W., Des Moines
James, Lora D., Fairfield (L.M.)
James, Peter E., Audubon (L.M.)
January, Lewis E., Iowa City
Jaquis, John R., Reinbeck
Jardine, George A., New Virginia (A.M.)
Jarvis, Harry D., Chariton (L.M.)
Jaskunas, Stanley R., Bloomfield
Jauch, Karl E., La Porte City
Jeffries, James H., Waterloo
Jeffries, Milo E., Marshalltown
Jeffries, Roy R., Waukon
Jenkins, George A., Albia (L.M.)
Jenkins, George D., Burlington
Jenkins, Hanley F., Des Moines
Jenkins, Richard L., Iowa City
Jenkinson, Harry R., Iowa City
Jenks, Alonzo L., Jr., Des Moines
Jensen, Arno L., Clinton
Jensen, Kenneth V., Clarinda
Jensen, LeRoy E., Audubon
Jensen, Ralph, Ames
Jerdee, Ingebrecht C., Clermont
Jerome, Peter, Davenport
Jewel, Philip D., Iowa City
Johann, Albert E., Des Moines (A.M.)
Johnson, Aaron Q., Sioux City
Johnson, Charles O., Des Moines
Johnson, Clarence A., Coon Rapids
Johnson, Eugene L., Spirit Lake
Johnson, G. Raymond, Ottumwa
Johnson, Harvey A., Atlantic
Johnson, Merton A., Nevada
Johnson, Norman M., Clarinda
Johnson, Richard M., Denison
Johnson, Robert J., Iowa Falls
Johnson, Robert M., Des Moines
Johnson, Stancil E. D., Cherokee
Johnston, C. Harlan, Des Moines
Johnston, George B., Estherville
Johnston, Harry L., Ames
Johnston, Helen, Des Moines (A.M.)
Johnston, Wayne A., Dubuque (A.M.)
Jones, Cecil C., Des Moines (A.M.)
Jones, Clare C. Spencer
Jones, G. William, Des Moines
Jones, Harold W., Sioux City
Jones, Harry J., Cedar Rapids (L.M.)
Jones, Maynard L., Colfax
Jongewaard, Albert J., Jefferson
Jongewaard, Robert E., Wesley
Joranson, Robert E., Council Bluffs
Jordan, John W., Maquoketa
Jowett, John R., Clinton
Joyce, George T., Mason City
Joynt, Albert J., Waterloo
Joynt, Michael F., Marcus (L.M.)
Joynt, Robert J., Iowa City
Judiesch, Kenneth J., Iowa City
Juel, Einer M., Atlantic

Kaack, Harry F., Jr., Clinton
Kaelber, William W., Iowa City
Kahler, Hugo V., Reinbeck (L.M.)
Kane, Thomas E., Boone
Kanealy, John F., Cedar Rapids
Kanis, Stewart F., Pella
Kapke, Franklin W., Mason City
Kaplan, David D., Sioux City
Kaplan, Robert M., Davenport
Kapp, David F., Dubuque
Karp, Leon M., Lake City
Kasiske, Walter B., Keokuk
Kassmeyer, John C., Dubuque (L.M.)
Kast, Donald H., Des Moines
Katzmann, Frederick S., Des Moines
Kaufmann, Robert J., Newton
Keane, Kenneth M., Sioux City
Keech, Roy K., Cedar Rapids (L.M.)
Keeney, George H., Mallard (L.M.)
Keettel, William C., Iowa City
Kehoe, Joseph L., Davenport
★Keil, Philip G., Washington, D. C.
Keiser, Orris S., Muscatine
Keith, Charles W., Strawberry Point (L.M.)
Keith, John J., Marion
Kelberg, Melvin R., Sioux City
Keller, Erwin F., Davenport
Keller, John T., Iowa City
Kelley, John H., Des Moines
Kelley, Newell R., Des Moines
Kelly, Alma C. B., Des Moines
Kelly, Anthony H., Sioux City
Kelly, Clarkson L., Jr., Charles City
Kelly, Dennis H., Des Moines (A.M.)
Kelly, Dennis H., Jr., Des Moines
Kelly, John F., Sioux City
Kelly, John F., Fort Dodge
★Kelly, Thomas W., Anchorage, Alaska
Kelly, William J., Dubuque
Kelsey, James E., Des Moines
Kemp, Robert R., Keokuk
Kenefick, John N., Algona
Kennedy, Edwin D., Mason City
Kennedy, Elizabeth Smith, Oelwein (L.M.)
Kenney, Bernard E., Council Bluffs
Kent, Robert W., Oakdale
Kent, Thomas H., Iowa City
Keohen, Gerald F., Dubuque
Kepros, Peter F., Cresco
Kern, George A., Des Moines
Kern, Lester C., Waverly (L.M.)
Kershner, Frank O., Clinton (A.M.)
Kersten, Herbert H., Fort Dodge
Kersten, John R., Fort Dodge
Kersten, Paul M., Fort Dodge
Kestel, John L., Waterloo
Kettelkamp, Enoch G., Monona
Kettelkamp, William E., Cedar Rapids
Keyser, Earl L., Marshalltown
Keyser, Ralph E., Marshalltown (L.M.)
Kieck, Ernest G., Etowah, N. C. (A.M.)
Kiernan, Thomas E., Sioux Center
Kiesau, Milton F., Postville
Kiesling, Harry F., Lehigh
Kilgore, Ben F., Des Moines
Kimball, Glenn J., Des Moines
Kimball, John E., West Liberty (L.M.)
Kimberly, Lester W., Davenport
King, Dean H., Spencer
King, Ross C., Clinton
Kingsbury, Kenneth R., Ottumwa
Kirch, Walter A., Des Moines
Kirkegaard, Virgil G., Waterloo
Kirkendall, Walter M., Iowa City
Kirkham, Lindsay J., Mason City
Klein, John L., Jr., Muscatine
Klein, Robert F., Muscatine
Kleinberg, Henry E., Des Moines (A.M.)
Klocksiem, Harold L., Des Moines
Klocksiem, Roy G., Rockwell City
Klok, George J., Council Bluffs
Kluever, Herman C., Fort Dodge
Knight, Benjamin L., Cedar Rapids
Knight, Edson C., Marshalltown
Knight, Russell A., Rockford
Knipfer, Robert L., Jesup
Knosp, Alton, Paton
Knosp, Norman C., Belle Plaine
Knott, James L., Council Bluffs
Knott, Peirce D., Sioux City
Knowles, Fred L., Fort Dodge

Knox, Robert M., Des Moines
Koch, John S., Cedar Rapids
Koelling, Lloyd H., Newton
Kohrs, Edward, Davenport
Koob, Dean F., Algona
Koons, Claude H., Des Moines
*Koontz, Lyle W., Vinton
Kopecky, Edward F., Cedar Rapids
Kopsa, Walter J., Tipton
Kordecki, Frank A., Independence
Korner, Harold, Waterloo
Korns, Horace M., Iowa City
Korson, Selig M., Independence
Kos, Clair M., Iowa City
Koser, Donald C., Cherokee
Kosieradzki, Henry, Marshalltown
Krettek, John E., Council Bluffs
Krigsten, Joe M., Sioux City
Krigsten, William M., Sioux City
Kroack, Kalman J., Buffalo Center
Kruckenberg, William G., Cedar Rapids
Krueger, Norman L., Casey
Kruml, Joseph G., Council Bluffs
Kruse, Otto E., Tipton
Kruse, Rolf F., Waterloo
Kruse, Rufus H., Marshalltown
Kruse, Steven G., Slater
Kuehn, Willard G., Clarinda
Kugel, Robert B., Iowa City
Kuhl, Augustus B., Jr., Davenport
Kuhl, Robert H., Creston
Kuker, Leo H., Carroll
Kurtz, Cecilia M., Cedar Rapids
Kyer, Donald L., Dubuque
Kyle, William S., Washington (L.M.)

Lackore, Leonard K., St. Ansgar
Lagen, Mansfield S., Dubuque
Lagoni, Ralph P., Eldridge
Laimins, Peter T., Cedar Falls
Lake, Carlton B., Cedar Rapids
LaMar, John W., Des Moines
Lamb, Harry H., Davenport
Lambrecht, Paul B., Des Moines
Landhuis, Leo R., Fort Dodge
Landry, Gerald R. F., Council Bluffs
Lanich, Oscar K., Jr., Waterloo
Lannon, James W., Mason City
LaPorte, Paul A., Fort Dodge
Larimer, Robert C., Sioux City
Larimer, Robert N., Sioux City
Larsen, Elmer A., Centerville
Larsen, Frank S., Fort Dodge
Larsen, Harold T., Fort Dodge
Larsen, Lawrence V., Harlan
Larson, Andrew G., Dickens (L.M.)
Larson, Carroll B., Iowa City
Larson, Erling, Davenport
Larson, Gerald E., Elk Horn
Larson, Lester E., Decorah
Larson, Marvin O., Hawarden
Larson, Walter W., Ames
Latchem, Charles W., Des Moines
Latimer, Milton J., Burlington
Latourette, Howard B., Iowa City
Laube, Paul J., Dubuque
Laughlin, Ralph M., Cedar Rapids
Lauvstad, Edward E., Osceola
Lavender, John G., George
Lawler, Matthew P., Jr., Des Moines
Lawlor, Jeremiah F., Iowa City
Lawrence, Montague S., Iowa City
Layton, Jack M., Iowa City
Ledogar, Joseph A., Webster City
Lee, Richard H., Dubuque
Lee, Robert W., Fort Dodge
Lee, Wayne R., Burlington
Leehey, Paul J., Independence
Leffert, Frank B., Centerville
Lehman, Emery W., Bluffton, Indiana (L.M.)
Lehman, John D., Iowa City
Lehr, Sylvan M., Cedar Rapids
Leibel, Lynn L., Council Bluffs
Leinbach, Samuel P., Belmond
Leinfelder, Placidus J., Iowa City
Leiter, Herbert C., Sioux City
Lekwa, Alfred H., Story City
Lemke, Betty A. T., Des Moines
Lemon, Kenneth M., Oskaloosa
Lenzmeier, Albert J., Davenport
Leonard, Thurman K., Madrid
LePoidevin, Jean S., Waterloo
Lerner, Ernest N., Mount Pleasant
Lesiak, John J., Titonka
Levy, James W., Sioux City
Lewis, Faye C., Webster City
Lewis, William B., Webster City
Lichtenberg, Robert P., Keokuk
Liechty, Richard D., Iowa City
Lierle, Dean M., Iowa City
Lierman, Clifford E., Lake View
Light, Henry R., Grinnell
Liken, John A., Creston
Limbert, Edwin M., Council Bluffs
Lindell, Sherman E., LeMars
Linder, Enfred E., Ogden
Lindholm, Claire V., Armstrong
Lindholm, Hugo A., Armstrong
Lindley, Ellsworth L., Cedar Rapids
Linge, Scott, Fayette
Linthacum, Robert W., Dysart
Liska, Edward J., Ute
Lister, Eugene E., Dallas Center
Lister, Kenneth E., Ottumwa
Llewellyn, Neal N., Iowa City
Lloyd, John M., Washington
Locher, Robert C., Cedar Rapids
Lockhart, Harold A., Cedar Rapids
Locksley, Herbert B., Iowa City
Loeck, John F., Independence
Loeffelholz, Paul L., Fort Dodge
Loes, Anthony M., Dubuque (L.M.)
Lohman, Frederick H., Waterloo
Lohmann, Carl J., Burlington
Lohnes, John H., Cedar Rapids
Lohr, Phillips E., Churdan
Long, Draper L., Mason City
Longnecker, Daniel S., Iowa City
Longworth, Wallace H., Boone
Looker, Richard F., Cedar Rapids
Loomis, Frederic G., Waterloo
Lorfeld, Gerhard W., Davenport
Losasso, David A., Davenport
Losh, Clifford W., Des Moines (L.M.)
Losh, Clifford W., Jr., Des Moines
Lovejoy, E. Parish, Des Moines
Loving, Luther W., Estherville
Lowry, Charles F., Council Bluffs
Lowry, Earl C., Des Moines
Loxterkamp, Edward O., Rolfe
Ludwig, Clarence J., Waterloo
Luehrsmann, Bernard C., Dyersville
Luhman, Lowell A., Iowa City
Luke, Edward, Washington, D.C. (L.M.)
Lulu, Donald J., Des Moines
Lutton, John D., Sioux City
Lynn, John R., Iowa City
Lyons, Mary Louise, Des Moines

MacGregor, John K., Mason City
MacLeod, Hugh G., Greene
MacQueen, John C., Iowa City
McAllister, William G., Manly
McBride, Donald F., Des Moines
McBride, Robert H., Sioux City
McCaffrey, Eugene H., Des Moines (A.M.)
McCall, John H., Allerton (L.M.)
McCarthy, Frank D., Sioux City
McClean, Earl D., Des Moines (L.M.)
McClellan, John W., Onawa
McClure, Gail A., Ames
McClurg, Frank H., Fairfield
McConkie, Edwin B., Cedar Rapids
McConnell, Robert W., Davenport
McCool, Robert F., Clarion
McCormack, William C., Ames
McCoy, Harold J., Des Moines
McCoy, John T., Cedar Falls
McCrary, W. Ashton, Lake City
McCreedy, Murry L., Washington
McCreight, George C., Carmel Valley, California (A.M.)
McCuistion, Harry M., Sioux City
McDonald Don J., Cedar Rapids
McEleney, Donald A., Cedar Rapids
McFadden, F. Ross, Davenport
McFarland, Guy E., Jr., Ames
McFarland, Julian E., Ames (A.M.)
McFarlane, Donald J., Dubuque
McFarlane, John A., Sioux City
McGarvey, Cornelius J., Des Moines
McGee, John E., Fort Madison
McGilvra, Arthur L., Sioux Center
McGinnis, George C., Fort Madison
McGrane, Merle J., New Hampton (A.M.)
McGuire, Kenneth L., Keota
McHugh, Charles P., Sioux City (L.M.)
McIllece, Raymond C., Fort Madison
McIntosh, Philip D., Ottumwa
McIntyre, Caryl C., Waterloo
McKay, Kenneth H., Davenport
McKay, Richard V., Jr., Dubuque
McKean, Frank F., Allison
McKee, Albert P., Iowa City
McKitterick, John C., Burlington
McLaughlin, Philip A., Coralville
McMahon, Arthur E., Jr., Mason City
McMahon, John M., Iowa City
McMahon, Thomas, Clinton (L.M.)
McMeans, Thomas W., Davenport
McMillan, George J., Fort Madison
McMillan, James T., III, Des Moines
McMurray, Edward A., Newton
McMurray, Harry N., Burlington
McNamara, Robert J., Dubuque
McNamee, Jesse H., Des Moines
McQuiston, J. Stuart, Cedar Rapids
McTaggart, William B., Fort Dodge
McVay, Melvin J., Lake City

Madaras, John S., Jr., Iowa City
Magaret, Ernest C., Glenwood
Magee, Emery E., Waterloo (L.M.)
Maher, Louis L., Des Moines
Mahoney, James D., Council Bluffs
Mailliard, Robert E., Storm Lake
Maixner, Reynold R., Ottumwa
Maixner, William D., Ottumwa
Maland, Donald O., Cresco
Maltry, Emile, Jr., Fort Dodge
Manderscheid, Robert A., Boone
Mangan, J. Thomas, Forest City
Manning, Ephraim L., Davenport
Manoles, Elias N., Rochester, Minnesota
Maplethorpe, Charles W., Toledo (L.M.)
Maplethorpe, Charles W., Jr., Toledo
Marble, Edwin J., Marshalltown
Marble, Willard P., Marshalltown
Margolis, Irving B., Des Moines
Margules, Maurice P., Council Bluffs
Margulies, Harold, New York, New York
Marinos, Harry G., Mason City
Maris, Cornelius, Sanborn
Mark, Edward M., Clarksville
Mark, Milton S., Des Moines
Marker, John I., Davenport
Markham, William S., Harlan
Marme, George W., DeWitt
Marquis, Fred M., Waterloo
Marquis, George S., Des Moines
Marriott, Charles M., Sioux City
Marsh, Frederick E., Council Bluffs
Marsh, Frederick E., Jr., Council Bluffs
Martin, James W., Holstein
Martin, Josef R., Carroll
Martin, Ronald F., Sioux City
*Martin, Sidney D., Carroll (L.M.)
Marty, Sophocles D., Mason City
Mason, Edward E., Iowa City
Mast, Truman M., Washington
Mater, Dwight A., Knoxville
Mathiasen, Aileen E., Council Bluffs
Mathiasen, Emmett B., Council Bluffs
Mathiasen, Henning W., Council Bluffs
Mathiasen, John W., Council Bluffs
Matthews, Alexander, Mason City
Matthey, Carl H., Davenport
Matthey, Walter A., Bettendorf (L.M.)
Mattice, Roger J., Sioux Rapids
Maughan, John F., Baxter
Maxwell, Charles T., Sioux City (L.M.)
Maxwell, John R., Iowa City
May, George A., Forest Grove, Oregon (A.M.)
Mayer, Paul D., Cherokee
Mayner, Frank A., Montrose
Mazur, Theodore T., Burlington
Meffert, Clyde B., Cedar Rapids
Meger, Robert F., Victor
Megorden, William H., Mount Pleasant
Mehrl, William J., Cascade
Meister, Philippine, Des Moines
Melampy, C. Nelson, Ottumwa
Melgaard, Robert T., Dubuque
Melichar, Paul J., Garner
Mellen, Robert G., Clinton
Merillat, Herbert C., Des Moines
Merkel, Byron M., Des Moines
Merritt, Arthur M., Des Moines (L.M.)
Merritt, F. Benjamin, Dubuque
Merritt, James O., Des Moines
Merselis, Harold K., Audubon
Merulla, Charles A., Marion
Meservey, Maynard A., Jr., Des Moines
Metzner, Franz N., Dubuque
Meyer, Alfred K., Clinton
Meyer, Robert J., Wellsburg
Meyers, Frank William, Dubuque (L.M.)
Meyers, Paul T., Bloomfield
Meyers, Robert P., Ottumwa
Michaelson, Beryl F., Dakota City
Michaelson, Manly, Bellevue
Michel, Gene E., Sac City
Michelfelder, Theodore J., Fort Dodge
Middleton, William H., Cedar Rapids
Mikelson, Clarence J., Waterloo
Miller, Chester I., Iowa City
Miller, Donald F., Williamsburg
Miller, Enos D., Wellman (L.M.)
Miller, Garfield, Calmar
Miller, Herbert P., Jr., Iowa City
Miller, Howard L., Cedar Rapids
Miller, Jay R., Wellman
Miller, Keith E., Agency
Miller, Lawrence A., North English

Miller, Lawrence A., II, North English
Miller, Richard L., Waterloo
Miller, Robert C., Waterloo
Miller, Temple M., Muscatine
Mills, Keith F., Lone Tree
Miltner, Leo J., Davenport
Minassian, Thaddeus A., Des Moines (L.M.)
Mincks, James R., Bloomfield
Mirick, Donald F., Clinton
Mitchell, Claire H., Cincinnati (L.M.)
Mitchell, Duane E., Mount Ayr
Mitchell, Richard C., Waterloo
Moberly, John W., Dubuque
Mochal, John L., Independence
Moeller, Jay A., Dubuque
Moen, Stanley T., Cedar Rapids
Moermond, James O., Buffalo Center
Moershel, Henry G., Homestead
Moershel, William J., Cedar Rapids
Moes, John R., Waterloo
Moessner, Harold, Amana
Moles, Marvin R., Newton
Moling, John H., Dubuque
Monahan, Joseph L., Clinton
Monnig, Philip J., Sioux City
★Montgomery, Albert E., New York, New York
Montgomery, George E., Ames
Montgomery, Guy E., Washington
Montz, Fred, Lowden
Moon, Barclay J., Cedar Rapids
Mooney, James C., Des Moines
Moore, Carlyle C., Emmetsburg
Moore, Edson E., Fort Dodge
Moore, Jesse C., Eldon (L.M.)
Moore, Pauline V., Iowa City
Moore, Richard M., Des Moines
Moorehead, Harold B., Underwood
Mordaunt, Richard H., Nevada
Morgan, Dale D., Marion
Morgan, Francis W., Mason City
Morgan, Harold W., Mason City
Morgan, Jack N., Fairfield
Morgan, Paul W., Mason City
Morgan, Rex L., Sioux City
Morganthaler, Otis P., Templeton (L.M.)
Moriarty, Darwin L., Council Bluffs
Morrison, John R., Des Moines
Morrison, Robert E., Waterloo
Morrison, Roland B., Carroll
Morrissey, George E., Davenport
Morrissey, William J., Des Moines
Mosher, Martin L., Jr., Iowa City
Motto, Edwin A., Davenport
Mountain, George E., Des Moines
Moyers, Jack, Iowa City
Mugan, Robert C., Sioux City
Mulsow, Frederick W., Cedar Rapids
Mumford, Earl M., Sioux City
Munger, Elbert E., Jr., Spencer
Munns, Richard E., Hampton
Murphey, Arlo L., Fredericksburg
Murphy, Cornelius B., Alton
Murphy, George C., Waterloo
Murphy, Robert E., Fort Madison
Murphy, Thomas W., Mount Pleasant
Murray, Frederick G., Cedar Rapids (L.M.)
Murray, Jonathan H., Burlington
Murtaugh, James E., New Hampton
Myerly, William H., Des Moines
Myers, Frank L., Sheldon
Myers, Kermit W., Sheldon
Myers, Robert W., Monticello

Nafziger, Ezra G., Battle Creek
Nakashima, Victor K., Dubuque
Napier, John G., Iowa City
Neal, Emma J., Cedar Rapids (L.M.)
Needles, Roscoe M., Atlantic
Neff, Herbert, Guthrie Center
Neglia, Fortunato J., Maxwell
Neligh, Gordon L., Jr., Council Bluffs
Nelken, Leonard, Clinton
Nelson, Arnold L., Des Moines
Nelson, F. Lawrence, Ottumwa
Nelson, Leo C., Jefferson
Nelson, Norman B., Iowa City
Nemec, Joseph J., Cedar Rapids
Nemmers, Gerald J., Washington
Nemmers, Julian G., Dubuque
Nessa, Curtis B., Burlington
Netolicky, Robert Y., Cedar Rapids
Neuzil, William J., Cedar Rapids (L.M.)
*Newland, Don H., Belle Plaine
Newland, Don O., Des Moines
Nicoll, Charles A., Panora
Niedorf, Saul, Independence
Nielsen, Arnold T., Ankeny
Nielsen, Glen E., Des Moines
Nielsen, Raymond M., Charles City
Nielsen, Rudolph F., Cedar Falls
Nielson, Arthur L., Council Bluffs
Nierling, Paul A., Cresco
Nitzke, Everett A., Des Moines
Niver, Edwin O., Clarinda
Noble, Nelle S., Des Moines (L.M.)
Noble, Rusl P., Alta
Nocella, Reynold A., Independence
Nolan, John C., Corning
Noonan, James J., Marshalltown
Nord, Donald H., Cambridge
Nordin, Charles A., Des Moines
Nordschow, Carleton D., Iowa City
Norris, Albert S., Iowa City
Norris, Lewis D., Newton
Northup, Maurice, Humboldt
Noun, Louis J., Des Moines
Noun, Maurice H., Des Moines
Noziska, Charles R., Council Bluffs
Nyquist, David M., Eldora

Ober, Frank G., Burlington
O'Brien, Lyal J., Fort Dodge
O'Brien, Stephen A., Mason City (L.M.)
O'Brien, Stephen A., Jr., Dubuque
O'Connor, Edwin C., New Hampton
O'Donnell, Joseph E., Clinton
Oelrich, Carl D., Sioux Center
Oestreicher, Harry, Independence
Oggel, Herman D., Waterloo (L.M.)
O'Keefe, Paul T., Waterloo
O'Leary, Francis B., Sibley
Olin, Elvin E., Dubuque
Olsen, Martin I., Des Moines (L.M.)
Olsen, Max E., Minden
Olson, Ranald E., Muscatine
Olson, Evelyn M., Winterset
Olson, Stewart O., Des Moines
O'Neal, Harold E., Tipton
Onnen, Dale R., Newton
Orcutt, Paul E., Marion
Orelup, Don N., Albia
Ortiz, Rafael I., Des Moines
Ortmeyer, Donald W., San Rafael, California
Orton, Lawrence C., Mason City
Orvis, Roger C., Dubuque
Osborn, C. Robert, Dexter
Osincup, Paul W., Sioux City
Osten, Burdette H., Northwood
O'Toole, Laurence C., LeMars
Ottilie, Donald J., Oelwein
Otto, Paul C., Fort Dodge
Overton, Roy W., Des Moines
Owca, Anthony S., Centerville
Owen, William E., St. Ansgar
Ozaydin, Ismail M., Council Bluffs

Packard, Douglas K., Dubuque
Pahlas, Henry M., Dubuque (L.M.)
Paige, Ralph T., LaPorte City
Palmer, Carson W., Guttenberg (A.M.)
Palmer, Howard C., West Liberty
Palmer, Russell H., Postville
Palumbo, Louis T., Des Moines
Paragas, Modesto R., Creston
Parish, John R., Grinnell
Parish, Havner H., Sioux City
Parke, John, Cedar Rapids
Parker, Loran F., Iowa Falls
Parker, Robert L., Des Moines (L.M.)
Parks, Claude O., Iowa City
Parks, John L., Muscatine
Parson, Victor G., Des Moines
Parsons, Earl, Burlington
Parsons, John C., Des Moines
Paschal, George A., Webster City
Pascoe, Paul L., Carroll
Pasterak, George E., Mount Pleasant
Patterson, John C., Independence
Patterson, Robert K., Conrad
Patterson, Roy A., Webster City
Paul, John D., Anamosa
Paul, Richard E., Des Moines
Paul, William D., Iowa City
Paulsen, Donald A., Iowa City
Paulsen, Herbert B., Harris
Paulson, Jerome F., Mason City
Paulus, Edward W., Iowa City
Pearlman, Leo R., Des Moines
Pearson, George J., Burlington
Peart, John C., Davenport
Peasley, Harold R., Des Moines
Pedersen, Arthur M., Council Bluffs
Pedersen, Paul D., Council Bluffs
Peggs, Harold J., Tucson, Arizona
Peisen, Conan J., Des Moines
Pelz, Werner P., Charles City
Penly, Don H., Cedar Falls
Perel, Ada R., Des Moines
Perkins, Franklyn C., Hedrick
Perkins, Rollin M., Davenport
Perley, Arthur E., Waterloo
Perrin, William D., Sumner
Pester, George H., Council Bluffs
Petersen, Donal C., Burlington
Petersen, Emil C., Atlantic
Petersen, Millard T., Atlantic
Petersen, Robert E., Dubuque
Petersen, Vernon W., Clinton
Peterson, Byron E., Mount Pleasant
Peterson, Charles R., Des Moines
Peterson, Elroy R., Ames
Peterson, Evan A., Burlington
Peterson, Frank R., Cedar Rapids
Peterson, John C., Hartley
Peterson, Loren G., Des Moines
Peterson, Ray W., Clear Lake
Peterson, Richard E., Iowa City
Peterson, Richard J., Panora
Pettipiece, Clayton, Sidney
Pfaff, Robert A., Dubuque
Pfeiffer, Donald W., McGregor
Pfeiffer, Harry E., Riviera Beach, Florida (L.M.)
Pfohl, Anthony C., Dubuque
Phelan, Mary Patricia, Altoona
Phelps, Gardner D., Waterloo
Phelps, Richard E. H., New Sharon
Pheteplace, Willard S., Davenport
Phillips, Albin B., Clear Lake (L.M.)
Phillips, Allan B., Des Moines
Phillips, Clarence P., Muscatine
Phillips, Walter B., Montezuma
Piburn, Marvin F., Salisbury, South Rhodesia, Africa
Piekenbrock, Frank J., Dubuque
Piekenbrock, Thomas C., Dubuque
Piercy, Kenneth C., Ames
Pierson, Lawrence E., Sioux City
Pietrzak, Julius, Cedar Rapids
Ping, Er Chang, Woodward
Pitcher, Arlo L., Belmond
Pitluck, Harry L., Laurens
Pittinger, Charles B., Iowa City
Plager, Vernon H., Waterloo
Plankers, Arthur G., Dubuque
Plott, Carol L., Algona
Poepsel, Frank L., West Point
Polit, Jaime, Fort Madison
Ponseti, Ignacio V., Iowa City
Poore, Samuel D., Villisca
Porter, Lawrence W., Indianola
Porter, Philip M., New Hampton
Porter, Richard C., Des Moines
Porter, Robert J., Des Moines
Porter, S. Dale, Grinnell
Posner, Edward R., Jr., Des Moines
Posner, Edward R., Sr., Des Moines (L.M.)
Potter, Paul H., Mason City
Powell, Adrian R., Elkader
Powell, Charles W., Cherokee
Powell, Robert M., Mason City
Powell, Robert V., Kingsley
Powell, William R., Des Moines
Powers, Donald W., Rock Rapids
Powers, George H., Shenandoah
Powers, Henry R., Emmetsburg
Powers, Ivan R., Waterloo
Powers, John L., Estherville
Preacher, Charles B., Davenport
Preece, Wade O., Waterloo
Presbrey, Richard B., Independence
Prescott, Kenneth H., Storm Lake
Presnell, William H., Charlotte
Prewitt, Leland H., Ottumwa
Priestley, Joseph B., Des Moines
Proctor, Rothwell D., Cedar Rapids
Prouty, James V., Cedar Rapids
Province, William, Jr., Dubuque
Ptacek, Joseph L., Webster City
Pugh, Philip F. H., Sioux City
Pumphrey, Loira C., Keokuk
Puntenney, Andrew W., Boone
Purdy, William O., Des Moines

Quetsch, Richard M., Cedar Rapids

Radcliffe, Christian E., Iowa City
Radicia, Lucy M., Council Bluffs
Rahn, Gordon E., Mount Vernon
Rainy, Curtis W., Elma
Ralston, Furman P., Knoxville
Ramsaran, James P., Clarinda
Ramsdell, Stuart T., Joliet, Illinois
Randall, Ross G., Waterloo
Randall, William L., Hampton
Randolph, Aaron P., Anamosa
Rankin, Isom A., Iowa City
Rankin, John R., Keokuk
Rankin, William, Keokuk (L.M.)
Rapagnani, Joseph A., Indianola
Rassekh, Hormoz, Council Bluffs
Rater, David L., Ottumwa
Rathe, Herbert W., Waverly
Rathe, James W., Waverly
Rausch, Gerald R., Sioux City

Ravreby, Mark D., Des Moines
Read, Charles H., Iowa City
Reading, Donald S., Marshalltown
Readinger, Harry M., New London
Redfield, Earl L., Des Moines
Redmond, James J., Cedar Rapids
Reed, Robert J., Des Moines
Reeder, James E., Sioux City (L.M.)
Reeder, James E., Jr., Sioux City
Reedholm, Edwin A., Grundy Center
Regnier, Walter O., Mount Pleasant
Reibold, Frank W., Carroll
Reimers, Robert S., Fort Madison (L.M.)
Reinertson, Jim W., Des Moines
Rembolt, Raymond R., Iowa City
Rence, William G., Mason City
Resinger, Harold E., Des Moines
Reuber, Roy N., Mason City
Reuling, Frank H., Waterloo
Reyes, Luis A., Des Moines
Rhodes, John M., Pocahontas
Rice, Floyd W., Des Moines (L.M.)
Richard, Clysta A., Des Moines
Richardson, Francis H., Council Bluffs
Richey, Granville L., Centerville
Richmond, Arthur C., Fort Madison
Richmond, Frank R., Fort Madison
Richmond, Frank R., Jr., Fort Madison
Richmond, Paul C., New Hampton
Richter, Harold J., Albia
Ridenour, Edward J., Waterloo
Riegelman, Ralph H., Des Moines
Rieniets, John H., Cedar Rapids
Riggert, Leonard O., San Diego, California (A.M.)
Rindskopf, Wallace, Des Moines
Ringdahl, Irving, Nevada
Ritter, Eugene F., Centerville
Ritter, John A., Ottumwa
Robb, William J., Cedar Rapids
Roberts, C. Ronald, Dysart
*Roberts, Francis M., Knoxville (L.M.)
Roberts, Justus B., Ottumwa
Roberts, Richard W., Des Moines
Robertson, Treadwell A., West Liberty
Robinson, Beverly, Des Moines
Robinson, Ray G., State Center
Robinson, Van C., Des Moines
Robison, Harry V., Sioux City
Rock, J. Gordon, Davenport
Rock, John E., Davenport
Rock, William K., Waterloo
Rockwell, Maryelda, Clinton
Rodabaugh, Kenneth D., Tabor
Rodawig, Don F., Spirit Lake
Rodawig, Donald F., Jr., Spirit Lake
Roddy, Harold J., Mason City
Rogers, Claude B., Earlville (L.M.)
Rohlf, Edward L., Jr., Waterloo
Rohrbacher, William M., Iowa City
Rohwer, Roland T., Sioux City
Rolfs, Floyd O., Parkersburg
Rolfs, Fred A., Aplington
Romano, Anthony M., Neola
Rominger, Clark R., Waukon
Rominger, Clark W., Waukon (L.M.)
Rooney, Joseph M., Algona
Rose, Alvin A., Story City (L.M.)
Rose, Joseph E., Grundy Center
Rosebrook, Lee E., Ames
Rosenberg, Harlan K., Iowa City
Rosendorff, Charlotte, Davenport
Ross, Arthur J., Jr., Perry
Rossi, Nicholas, Iowa City
Rost, Glenn S., Lake City
Rotkow, Maurice J., Des Moines
Roudybush, William B., Muscatine
Roules, J. Frederic, Mediapolis
Rovine, Byron W., Davenport
Rowley, Robert D., Burlington
Rowley, William G., Sioux City (L.M.)
Rowney, George W., Sioux City
Royal, Malcolm A., Des Moines (L.M.)
Rozeboom, Earl G., Winterset
Rudersdorf, Howard E., Sioux City
Rusk, Ross P., Dubuque
Russell, Elwood P., Burlington
Russell, John, Santa Barbara, California (L.M.)
Russell, Ralph E., Waterloo
Rust, Emery A., Webb (L.M.)
Ruth, Verl A., Des Moines
Ryan, James W., Jr., Des Moines
Ryan, Martin J., Sioux City
Ryan, Robert A., Fairfield

Saar, Jesse L., Donnellson
Saar, Jesse L., Jr., Burlington
Saar, John W., Keokuk
Safley, Max W., Forest City
Safranek, Edward J., Fort Dodge
Sahs, Adolph L., Iowa City
Sampson, Carl E., Creston
Samter, Bernhard, Mount Pleasant
Sand, Bernard F., Waterloo
Sanders, Donald C., Independence
Sanders, George E., Miami, Florida (L.M.)
Sanders, Matthew G., Fort Dodge
Sanders, William E., Tucson, Arizona (L.M.)
Sands, Sidney L., Des Moines
Sands, W. Wayne, Des Moines
Sarff, Floyd G., Logan
Sartor, Guido J., Mason City
Satrang, Geraldine, Sioux City
Sattler, Dwight G., Kalona
Sauer, Harold E., Marshalltown
Saul, F. William, Mason City
Sautter, Robert A., Mount Vernon
Sawyer, Thomas R., Cedar Rapids
Scanlan, George C., San Francisco, California (A.M.)
Scanlon, George H., Iowa City
Schacht, Norman A., Fort Dodge
Schaeferle, Lawrence G., Gladbrook
Schaeferle, Martin J., Eagle Grove
*Schaeffer, Paul H., University City, Missouri (L.M.)
Schafer, Leander H., DeWitt
Schaffner, Rome L., Cedar Rapids
Scharle, Theodore, Dubuque (A.M.)
Schedl, Harold P., Iowa City
Scheffel, Melvin L., Malvern
Scheibe, John R., Bloomfield
Schill, Austin E., Des Moines
Schissel, Donald, Des Moines
Schlaser, Verne L., Des Moines
Schlichtemeier, Ellis O., Spencer
Schmiedel, Edward E., Charles City
Schmit, Germain L., Cedar Rapids
Schmitt, Donald D., Des Moines
Schnug, George E., Dows (L.M.)
Scholl, Charles R., Cedar Rapids
Schoonover, Richard, Bloomfield
Schrier, Harold L., Fort Madison
Schrock, Christian E., Iowa City
Schroeder, Adrian J., Marshalltown
Schroeder, Leslie V., Walcott
Schropp, Rutledge C., Des Moines
Schueller, Charles J., Dubuque
★Schultz, Gerald T., Portsmouth, Virginia
Schultz, Ivan T., Humboldt
Schultz, Nelle E. T., Humboldt
Schupp, Joseph G., Jr., Des Moines
Schutter, John M., Algona
Schwartz, Charles, Cedar Rapids
Schwartz, John W., Sioux City
Sciortino, Aileen E. Mathiasen, Council Bluffs
Sciortino, Arthur L., Council Bluffs
Scott, Paul W., Ottumwa
Scott, Phillip A., Spirit Lake
Scoville, Victor T., Sioux City
Sear, John, Alden
Sebek, Roy O., Fort Dodge
Sedlacek, Leo B., Cedar Rapids (A.M.)
Sedlacek, Richard L., Cedar Rapids
Sedlacek, Robert A., Cedar Rapids
Seebohm, Paul M., Iowa City
Seely, Harmon D., Cherokee
Seibert, Cecil W., Waterloo
Seidler, William A., Jr., Jamaica
Sells, Benajmin B., Independence (L.M.)
Selo, Rudolph A., Council Bluffs
Senft, Otto E., Monticello
Sensenig, David M., Iowa City
Senska, Frank R., Iowa City (A.M.)
Senty, Elmer G., Davenport
Severson, George J., Slater (L.M.)
Severson, Wayne L., Slater
Shafer, Arthur W., Davenport
Shagass, Charles, Iowa City
Shank, Raymond A., Cedar Rapids
Sharpe, Donald C., Dubuque
Shaw, David F., Britt
Shaw, Robert E., Waverly
Shea, Thomas E., Storm Lake
Sheehan, Daniel J., Cherokee
Sheeler, Ivan H., Marshalltown
Sheets, Raymond F., Iowa City
Shepherd, Loyd K., Des Moines
Shepherd, Ralph H., Monona
Sherman, Richard C., Los Angeles, California (L.M.)
Sherman, Robert B., McKinney, Texas
Shiffler, H. Kirby, Des Moines
Shinkle, William C., Des Moines
Shonka, Thomas E., Clarinda
Shope, Charles D., Greenfield
Shorey, Joseph R., Davenport
Shreffler, James L., Waterloo
Shulman, Herbert, Waterloo
Shultz, William T., Marshalltown
Shurts, John J., Eldora
Sibley, Edward H., Sioux City
Sibley, John A., Ames
Silk, Marvin, Des Moines
Simpson, Roger A., Iowa City
Simmons, Ralph R., Des Moines (A.M.)
Singer, John R., Newton
Singer, Siegmund F., Ottumwa
Sinn, Irvin J., Williamsburg
Sinning, John E., Marshalltown
Sisk, James A., Iowa City
Sitz, Edward J., Waterloo
Skallerup, Glenn M., Red Oak
Skelley, Paul B., Jr., Dubuque
Skinner, Homer L., Carroll
Skopec, Francis M., Cedar Rapids
Skultety, F. Miles, Iowa City
Skultety, James A., Des Moines
Sloan, Fred R., Waterloo
Sloan, Fredric J., Cedar Rapids
Sloan, Morris G., Boone
Sloan, Roy C., Mount Pleasant
Sloterdyk, Yme, Knoxville
Smazal, Stanley F., Davenport
Smead, Leslie L., Newton (L.M.)
Smiley, George W., Ottumwa
Smiley, Ralph E., Mason City
Smith, Alfred N., Des Moines
Smith, Andrew C., Waterloo
Smith, Andrew D., Primghar
Smith, Anthony P., Knoxville
Smith, Cecil R., Wyoming
Smith, Clyde J., Gilmore City
Smith, Elmer M., Eagle Grove
Smith, Eugene, Waterloo
Smith, Gary L., Mason City
Smith, Herman J., Des Moines
Smith, Ian Maclean, Iowa City
Smith, J. Lawrence, Ames
Smith, J. Ned, Iowa City
Smith, James W., Iowa City
Smith, Jeanne Montgomery, Iowa City
Smith, John E., Clarence (L.M.)
Smith, Lawrence D., Des Moines
Smith, Lloyd D., Council Bluffs
Smith, Richard T., Davenport
Smith, Richard W., Clarion
Smith, Robert A., Albia
Smith, Robert J., Des Moines
Smith, Robert T., Granger
Smith, Rodger B., Mason City
Smith, S. Rodmond, Red Oak
Smith, Sidney A., Oskaloosa
Smrha, James A., Cedar Rapids
Smythe, Arnold M., Des Moines
Snyder, Raleigh R., Des Moines (L.M.)
Socarras, Alfredo D., Des Moines
Sohm, Herbert A., Des Moines
Soiseth, Robert P., Iowa City
Sokol, Charles R., State Center
Sones, Clement A., Des Moines
Soper, Robert T., Iowa City
Sorensen, Elmer M., Red Oak
Sorenson, Aral C., Davenport
Sorenson, Kermit R., Sabula
Southwick, William W., Marshalltown
Spear, William, Oakdale
Spearing, Joseph H., Harlan
Speers, James F., Des Moines
Spellman, George G., Sioux City
Spencer, John H., Muscatine
Spencer, William A., Osage
Sperry, Frederick S., Clarinda
Spevak, Jack J., Des Moines
Spilman, Harold A., Ottumwa
Spohnheimer, L. Nelson, Leon
Springer, Floyd A., Des Moines
Sprowell, Robert R., Ames
Stamler, Frederic W., Iowa City
Stansbury, John E., Santa Barbara, California (A.M.)
Staples, Lawrence F., Des Moines
Stark, Cal H., Cedar Rapids
Stark, Frederick M., Sioux City
Starr, Charles F., Mason City (L.M.)
Starry, Allen C., Sioux City (A.M.)
Stauch, Martin O., Moorhead (L.M.)
Stauch, Omar A., Sioux City
Steenrod, Emerson J., Iowa Falls
Steffens, Lincoln F., Dubuque
Steffey, Fred L., Keokuk
Stegman, Jacob J., Marshalltown
Steimel, Kenneth P., Charles City
Stephen, Paul, Cedar Rapids
*Stephen, Raymond J., Cedar Rapids
Stephens, Ralph R., Des Moines
Stepp, James K., Manchester (L.M.)
Sternagel, Fred, West Des Moines
*Sternberg, Walter A., Corona Del Mar, California (L.M.)
Sternhill, Isaac, Council Bluffs
Stevens, Clark W., Dubuque
Steves, Richard J., Des Moines
Stewart, John H., Ottumwa
Stewart, John K., Clinton

Stickler, Robert B., Des Moines
Stimac, Emil M., Davenport
Stinard, Charles D., Glenwood
Stinson, Alice C., Estherville (L.M.)
Stitt, Paul L., Fort Dodge
Stoakes, Charles S., Lime Springs (L.M.)
Stockdale, John C., Burlington
Stoikovic, Joseph P., Burlington
Stone, Daniel B., Iowa City
Storck, Robert D., Dubuque
Strand, Clarence M., Dubuque
Strathman, Lawrence C., Shenandoah
Stratman, Clarence A., Sac City
Straub, Joseph J., Dubuque
Straumanis, Janis, Solon
Straumanis, John J., Iowa City
Strawn, John T., Vinton (L.M.)
Strong, Kirk H., Fairfield
Stroy, Donald T., Council Bluffs
Stroy, Herbert E., Osceola
Stuart, Percy E., Nashua (L.M.)
Stueland, Alvin J. R., Mason City
Stuelke, Richard G., West Branch
Stumme, Ernest H., Denver
Stumme, Luther P., Denver
Sullivan, Daniel J., Marshalltown
Sullivan, John V., Carroll
Sulzbach, John F., Burlington
Summers, Thomas B., Des Moines
Sun, Kuei shu, Ames
Sunderbruch, John H., Davenport
Sunner, Gerald C., Fort Dodge
Sutton, Gerald H., Jr., Boone
Sutton, James C., Boone
Svendsen, Reinert N., Kokuk
Swanson, Eric M., Fort Dodge
Swanson, Gerald W., Lamoni
Swanson, Keith R., Hull
Swanson, Leslie W., Mason City
Swayze, V. Warren, Muscatine
Sweem, Donald L. Belmond
Sweeney, Lloyd J., Sanborn
★Swenson, James D., Osage
Swift, Frederick J., Jr., Maquoketa
Swift, Frederick J., Sr., Maquoketa (L.M.)
Synhorst, John B., Des Moines (A.M.)
Syverud, John M., Davenport
*Sywassink, George A., Muscatine

Tabor, James R., Iowa City
Tait, John H., Des Moines (A.M.)
Tamisiea, Francis X., Missouri Valley
Taylor, Charles B., Claremont, California (L.M.)
Taylor, Donald E., Stuart
Taylor, James H., Clinton
*Taylor, Lawrence A., Ottumwa (A.M.)
Taylor, Maude, Ottumwa (L.M.)
Taylor, Robert S., Davenport (L.M.)
Taylor, Wendel W., Sheffield
Tegler, Wayne J., Iowa City
Teigland, Joel D., Des Moines
Telfer, William L., Waterloo
Teufel, John C., Davenport (L.M.)
Thaler, David, Cedar Rapids
Thatcher. Wilbur C., Fort Dodge
Theilen, Ernest O., Iowa City
*Theisen, Roy I., Dubuque
Thielen, Edward W., Waterloo
Thielen, John B., Fonda
Thoman, William S., Sioux City
Thomas, Colin G., Monticello (L.M.)
Thomas, James H., Sibley
Thompson, Elvin D., Jefferson
Thompson, Howard E., Dubuque (L.M.)
Thompson, James R., Waterloo (L.M.)
Thompson, Kenneth L., Oakland
Thompson, Virginia D., Des Moines
Thomsen, John G., Des Moines
Thornton, F. Eberle, Des Moines
Thornton, John W., Lansing
Thornton, Thomas F., Waterloo
Thornton, Thomas F., Jr., Waterloo
Thorson, John A., Dubuque
Throckmorton, J. Fred, Des Moines
Throckmorton, Jeannette Dean, Des Moines (L.M.)
Throckmorton, Scott L., Chariton
Throckmorton, Tom D., Des Moines
Tice, Claude B., Mason City (L.M.)
Tice, George I., Mason City
Tice, W. Arnold, Waterloo
Tidrick, Robert T., Iowa City
Tiedeman, John P., Sioux City
Tierney, Edmund J., Sioux City
Tierney, James M., Carroll
★Timmerman, Jay C., Lawton, Oklahoma
Todd, Donald W., Guthrie Center
Todd, Robert L., Burlington
Tolliver, Hillard A., Charles City
Top, Franklin H., Iowa City
Toubes, Abraham A., Des Moines
TouVelle, Alwyn R., Bettendorf
Towle, Robert A., Davenport
Tracy, John S., Sioux City
Trafton, Harold F., Council Bluffs
Traister, John E., Eddyville (L.M.)
Traynor, Eugene J., Independence
Trefz, Donald L., Nashua
Trey, Bernard L., Marshalltown
Treynor, Jack V., Council Bluffs
Trier, Paul J., Des Moines
Tripp, Richard C., Fort Dodge
Trotzig, Joseph P., Akron
Troxel, John F., Cedar Rapids
Troxell, Millard A., Cedar Rapids
Trueblood, Clare A., Indianola
Trumpe, William D., Cedar Rapids
Trunnell, Thomas L., Waterloo
Turner, Howard V., Des Moines
Turner, James H., Fairfield
Turner, Rosalie C., Nashua
Turner, Roy M., Armstrong
Tyler, Donald E., Fort Dodge
Tyrrell, John E., Manchester

Uchiyama, John K., Des Moines
Underriner, Robert E., Holstein
Updegraff, Charles L., Boone (L.M.)
Updegraff, Robert R., Des Moines
Updegraff, Thomas R., Waterloo
Utley, George H., Clarence
Utne, John R., Mason City
Utter, James T., Cedar Rapids

Valestin, Robert F., Des Moines
Valiquette, Frank G., Sioux City
Van Allen, Maurice W., Iowa City
Van Bemmel, Piet F., Ames
Van Camp, Thomas H., Breda
Vander Meulen, Herman C., Pella
Vander Stoep, Harry L., LeMars
Van Epps, Clarence E., Phoenix, Arizona (L.M.)
Van Epps, Eugene F., Iowa City
Vangsness, Ingmar U., Sioux City (A.M.)
Van Hecke, David C., Davenport
Van Metre, Paul W., Rockwell City (L.M.)
Van Natta, Carlton W., West Des Moines
Van Patten, E. Martin, Fort Dodge
Van Werden, Benjamin D., Keokuk
Van Wetzinga, Russell J., Bettendorf
Van Zante, Peter, Pella
Van Zee, Gene K., Pella
Varga, Laszlo, Independence
Vaubel, Ellis K., Estherville
Vaughan, William R., New London
Vaughn, Vincent J., Ottumwa
Vegars, Stanley H., Mason City
Veley, Robert W., Cedar Rapids
Verduyn, Wouter H., Reinbeck
Vernon, Robert G., Dubuque
Victorine, Edward M., Cedar Rapids
Viner, Thomas R., Leon
Vineyard, Thomas L., Ottumwa
Voigt, Ernest J., Burlington (A.M.)
Voigt, Franz O. W., Oskaloosa
von Lackum, J. Kenneth, Cedar Rapids
von Noorden, Gunter K., Iowa City
Vorhes, Carl E., Sheldon
Vorisek, Elmer A., Des Moines
Vosika, Edward J., Washington
Voss, Otto R., Davenport (L.M.)

Waggoner, Charles V., Clinton
Wagner, Donald J., Sioux City
Wagner, Eugene C., Plainfield
Wahrer, Frederick L., Marshalltown
Wainwright, Max T., Sioux City
Waldorf, Richard D., Waterloo
Walker, Charles C., Des Moines (L.M.)
Walker, Glenn L., Burlington
Walker, John R., Waterloo
Walker, Thomas G., Riceville
Walker, Thomas S., Riceville (L.M.)
Wall, David, Ames
Wall, John M., Boone
Wallace, Leo F., Burlington
Wallace, William E., Cedar Rapids
★Walsh, Eugene L., Huntington, West Virginia
Walsh, William E., West Union
Walston, Edwin B., Des Moines (L.M.)
Walston, James H., Sioux City
Walter, Dennis J., Des Moines
Walton, Seth G., Hampton
Wanamaker, A. Roy, Hamburg
Ward, Donovan F., Dubuque
Ward, Loraine W., Oelwein
Warden, Duane D., Council Bluffs
Ware, John, Mount Vernon
Ware, Stephen C., St. Petersburg, Florida
Ware, Thomas A., Sioux City
Warner, Emory D., Iowa City
Warner, Paul L., Minneapolis, Minnesota
Waste, Richard L., Manchester
Waterbury, Charles A., Jr., Waterloo
Watson, Charles F., Fairfield
Watson, Donald D., Chariton
Watt, Russell H., Marshalltown
Watters, George H., Des Moines
Watts, A. Fred, Creston (A.M.)
Watts, Campbell F., Cedar Rapids
Watts, Clyde F., Marengo
Watzke, Robert C., Iowa City
Weaver, David F., Davenport
Weaver, Kenneth H., Union
Webb, Daniel R., Oakdale
Webb, James B., Ottumwa
Weber, Frank N., Walnut
Weber, William W., Pomeroy
Weideman, Don C., Vinton
Weih, Elmer P., Clinton (L.M.)
Weinberg, Harry B., Davenport
Weingart, Julius S., Des Moines (L.M.)
Weland, Regis E., Cedar Rapids
Wellman, Thomas G., Clinton
Wells, Rodney C., Marshalltown
Wellso, Charles G., Cedar Rapids
Wentworth, Laydon S., Marble Rock
Wentzien, Albert J., Tama
Weresh, John D., Atlantic
Werner, Harold T., Fort Madison
Wessels, William R., Marshalltown
West, Alroy G., Council Bluffs
West, Norman D., Avoca
Westly, G. Travis, Mason City
Westly, J. Stephen, Mason City
Weston, B. Raymond, Mason City
Weston, Robert A., Des Moines (L.M.)
Wetrich, David W., Ottumwa
Wetrich, Max F., Grand Junction
Wettach, Robert S., Mount Pleasant
Weyer, Joseph J., Fort Dodge
Weyhrauch, Robert A., Cedar Falls
Wheeler, Edward R., Muscatine
Wheeler, Richard A., Des Moines
Whinery, Robert D., Iowa City
Whitaker, Ben T., Boone (L.M.)
White, Charles A., Iowa City
White, Charles E., Independence
White, George H., Des Moines
White, Roger K., Independence
White, Thomas C., Chariton
Whitehouse, William K., Ottumwa
Whitehouse, William N., Ottumwa
Whitley, Ralph L., Osage (L.M.)
Whitmer, Lysle H., Muscatine (A.M.)
Whitmire, James E., Sumner
Wichern, Homer E., Des Moines
Wicklund, Maurice M., Waterloo
Wicks, Ralph L., Boone
Widmer, James G., Wayland
Widmer, Reuben B., Winfield
Wiedemeier, Joseph L., Sioux City
Wiemers, Eugene L., Cherokee
Wigdahl, Lowell C., Emmetsburg
Wilcox, Delano, Malcom (L.M.)
Wilcox, Dwain E., Atlantic
Wilcox, Edgar B., Oskaloosa (L.M.)
Wilcox, Keith E., Muscatine
Wilcox, Kenneth M., Fort Dodge
Wilcox, Robert A., Iowa City
Wildberger, William C., Woodward
Wilhelmi, Raymond W., Sioux City
Wiley, Alden F., Waukon
Wilke, Frank A., Perry
Wilker, Richard F., Creston
Willett, Wilton, J., Manchester
Williams, Lawrence B., Maquoketa
Williams, M. Neil, Beirut, Lebanon
Williams, Thomas L., Cherokee
Williamson, Billy J., Keokuk
Wilson, Charles R., Manson
Wilson, F. Dale, Davenport
Wilson, Fredric L., Sioux City
Wilson, Fredric W., Sioux City
Wilson, Roy E., Iowa City
Wilson, Robert G., Missouri Valley
Wilson, William R., Iowa City
Winder, Clifford D., Waterloo
Winninger, Louis T., Waterloo
Winter, F. Donald, Burlington
Wirtz, Dwight C., Des Moines
Wirtz, Emerson K., West Des Moines
Wise, Arthur C., Iowa City
Wise, James H., Cherokee
Withers, Bill R., Waukon
Wolf, Henry H., Elgin
Wolf, William J., West Union
Wolfe, Otis D., Marshalltown
Wolfe, Russell M., Marshalltown

Wolfe, Wilson C., Ottumwa
Wolff, Hugh L., Iowa City
Wolpert, Paul L., Onawa
Wolters, Donald E., Estherville
Wolverton, Benjamin F., Cedar Rapids
Wood, Hobart R., Ottumwa
Wood, Richard A., Peterson
Woodard, Donald E., Waterloo
Woodard, Ralph E., Fort Dodge
Woodburn, Chester C., Jr., Des Moines
Woodhouse, Keith W., Cedar Rapids
Woodward, Arthur W., Waterloo
Wooters, Richard C., Des Moines
Wormhoudt, Herbert L., Ottumwa
Worrell, James T., Keosauqua
Worthington, John J., Cherokee
Wray, Clarence M., Iowa Falls (L.M.)
Wray, Robert M., Cedar Rapids
Wright, David W., Decorah
Wright, Thomas D., Newton
Wright, Thomas G., Marion
Wubbena, Arthur C., Rock Rapids
Wuest, Curtis G., Amana
Wurtzer, Ezra L., Clear Lake (A.M.)
Wyatt, George M., Iowa City
Wykoff, Sarah U., Des Moines

Yancey, C. Corbin, Sioux City
Yein, Chung Sung, Waterloo
Yetter, William L., Iowa City
Yocom, Albert L., Chariton (L.M.)
York, Dallas L., Creston
York, George L., Clinton
Young, Donald C., Des Moines
Young, Ernest R., Dubuque (L.M.)
Young, George G., Des Moines
Young, Howard O., Marion (L.M.)
Young, James J., Clinton
Young, Richard A., Clarion
Yugend, Sidney F., Indianola
Zabloudil, Warren C., Burlington
Zager, Lewis L., Waterloo
Zaharis, George M., Des Moines
Zehr, Earl E., Guttenberg
Zelinskas, Leonard P., Dubuque
Zellweger, Hans, Iowa City
Zibilich, George J., Lone Tree
Ziebell, William C., Sioux City
Ziffren, Sidney E., Iowa City
Zimmerer, Edmund G., Des Moines (L.M.)
Zimmerman, George R., Iowa City
Zoeckler, Samuel J., Des Moines
Zoutendam, Ronald L., Sheldon
Zukerman, Cecil M., Davenport

*Deceased
★Military Service
(L.M.) Life Member
(A.M.) Associate Member

FIFTY YEAR CLUB MEMBERS

JUNE 15, 1962

Acher, Albert E. ..... Fort Dodge

Baldwin, Leon A. ..... Riverton
Banton, Guy E. ..... Charles City
Barr, Guy E. ..... Sioux City
Bartlett, George E. ..... New Sharon
Behrens, George W. ..... Davenport
Bell, Edward P. ..... Pleasantville
Boice, Clyde A. ..... Washington
Bowers, Arthur S. ..... Orient
Bowie, Louis L. ..... Zearing
Bruce, James H. ..... Fort Dodge
Bullock, William E. ..... Lake Park
Burbank, Dean S. ..... Pleasantville
Burcham, Thomas A. ..... Des Moines

Cantwell, John D. ..... Davenport
Carlile, Amos W. ..... Manning
Cashman, Chester F. ..... Hartley
Chase, William B., Sr. ..... Des Moines
Chittum, John H. ..... Wapello
Clapsaddle, John G. ..... Burt
Clasen, Henry W. ..... Littleton, Colorado
Closson, Charles L. ..... Walker
Cody, William E. ..... Sioux City
Cole, Elmer J. ..... Woodbine
Conmey, Roy M. ..... Sergeant Bluff
Cooper, Gladys A. ..... Lansing, Michigan
Cressler, Frank E. ..... Churdan
Cretzmeyer, Francis X. ..... Emmetsburg
Crew, Arthur E. ..... Marion
Crow, George B. ..... Burlington

Day, Philip M. ..... Oskaloosa
Dean, William F. ..... Osceola
Decker, Jay C. ..... Sioux City
Demaree, Chester ..... Lacona
Ditto, Boyd L. ..... Burlington
Dorsey, Thomas J. ..... Fort Dodge
Downing, Leroy M. ..... Cedar Rapids
Dulin, Tarana J. G. ..... Iowa City

Egermayer, George W. ..... Elliott
Ennis, Harry H. ..... Manchester

Foulk, Frank E. ..... Des Moines

French, Royal F. ..... Marshalltown

Gardner, John R. ..... Lisbon
Gearhart, George W. ..... Springville
Goenne, William C., Sr. ..... Davenport
Goodenow, Sidney B. ..... Colo
Gray, John F. ..... Melcher
Gutch, Roy C. ..... Chariton

Hamilton, Benjamin F. ..... Jefferson
Hansen, Robert R. ..... Marshalltown
Harken, Conreid R. ..... Osceola
Harkness, Gordon F. ..... Davenport
Harrington, Burton ..... Cedar Rapids
Harris, Ray R. ..... Dubuque
Hartman, Frank T. ..... Waterloo
Hickenlooper, Carl B. ..... Winterset
Hickman, Charles S. ..... Centerville
Hoffman, Paul M. ..... Tipton
Hollis, Edward L. ..... Marengo
Hopkins, David H. ..... Des Moines
Houser, Cass T. ..... Cedar Rapids
Housholder, Harold A. ..... Winthrop
Howell, Elias B. ..... Ottumwa
Hudek, Joseph W. ..... Garnavillo

Ihle, Charles W. ..... Norfolk, Nebraska

Jackson, James M. ..... Jefferson
Jaenicke, Kurt ..... Clinton
James, Lora D. ..... Fairfield
James, Peter E. ..... Audubon
Jarvis, Harry D. ..... Chariton
Jenkins, George A. ..... Albia
Johann, Albert E. ..... Des Moines
Johnson, Amos F. ..... Florence, Nebraska
Jones, Harry J. ..... Cedar Rapids
Joynt, Michael F. ..... Marcus

Kahler, Hugo V. ..... Reinbeck
Kassmeyer, John C. ..... Dubuque
Keech, Roy F. ..... Cedar Rapids
Keeney, George H. ..... Mallard
Kennedy, Elizabeth Smith ..... Oelwein
Keith, Charles W. ..... Strawberry Point
Kern, Lester C. ..... Waverly

Keyser, Ralph E. ..... Marshalltown
Kimball, John E. ..... West Liberty
Knox, James M. ..... Cedar Rapids
Kyle, William S. ..... Washington

Larson, Andrew G. ..... Dickens
Loes, Anthony M. ..... Dubuque
Losh, Clifford W. ..... Des Moines
Luke, Edward ..... Washington, D. C.

McCall, John H. ..... Allerton
McClean, Earl D. ..... Des Moines
McHugh, Charles P. ..... Sioux City
McMahon, Thomas ..... Clinton
McVay, Melvin J. ..... Lake City

Magee, Emery E. ..... Waterloo
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Matthey, Walter A. ..... Bettendorf
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Miller, Enos D. ..... Wellman
Mitchell, Claire H. ..... Cincinnati
Moore, Jesse C. ..... Eldon
Murray, Frederick G. ..... Cedar Rapids

Neal, Emma J. ..... Cedar Rapids
Neuzil, William J. ..... Cedar Rapids
Noble, Nelle S. ..... Des Moines

O'Brien, Stephen A. ..... Mason City
Oggel, Herman D. ..... Waterloo
Olsen, Martin I. ..... Des Moines

Pahlas, Henry M. ..... Dubuque
Parker, Robert L. ..... Des Moines
Pfeiffer, Harry E. ..... Riviera Beach, Florida
Phillips, Albin B., Sr. ..... Clear Lake
Posner, Edward R. ..... Des Moines

Rankin, William ..... Keokuk
Reeder, James E., Sr. ..... Sioux City
Reimers, Robert S. ..... Fort Madison
Rogers, Claude B. ..... Earlville
Rominger, Clark W. ..... Waukon
Rose, Alvin A. ..... Story City
Rowley, William G. ..... Sioux City
Royal, Malcolm A. ..... Des Moines

Russell, John ..... Santa Barbara, California
Rust, Emery A. ..... Webb

Saunders, William E. ..... Tucson, Arizona
Schnug, George E. ..... Dows
Sells, Benjamin B. ..... Independence
Senska, Frank ..... Iowa City
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Smead, Leslie L. ..... Newton
Smith, John E. ..... Clarence
Snyder, Raleigh R. ..... Des Moines
Stauch, Martin O. ..... Moorhead
Stepp, James K. ..... Manchester
Stinson, Alice C. ..... Estherville
Stoakes, Charles S. ..... Lime Springs
Strawn, John T. ..... Vinton
Stuart, Percy E. ..... Nashua
Swift, Frederick J., Sr., ... Maquoketa

Taylor, Charles B. ..... Claremont, California
Taylor, Maude ..... Ottumwa
Taylor, Robert S. ..... Davenport
Teufel, John C. ..... Davenport
Thomas, Colin G. ..... Monticello
Throckmorton, Jeannette Dean ..... Des Moines
Tice, Claude B. ..... Mason City
Traister, John E. ..... Eddyville

Updegraff, Charles L. ..... Boone

Van Epps, Clarence E. ..... Phoenix, Arizona
Van Metre, Paul W. ..... Rockwell City
Voss, Otto R. ..... Davenport

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Weih, Elmer P. ..... Clinton
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Weston, Robert A. ..... Des Moines
Whitaker, Ben T. ..... Boone
Whitley, Ralph L. ..... Osage
Wilcox, Delano ..... Malcom
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Wurtzer, Ezra L. ..... Clear Lake

Yocom, Albert L. ..... Chariton
Young, Ernest R. ..... Dubuque
Young, Howard O. ..... Cedar Rapids

Zimmerer, Edmund G. ..... Des Moines

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Membership in Good Standing as of June 15, 1962

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Rominger, Mrs. C. R.
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Reedholm, Mrs. E. A.
Rose, Mrs. J. E.

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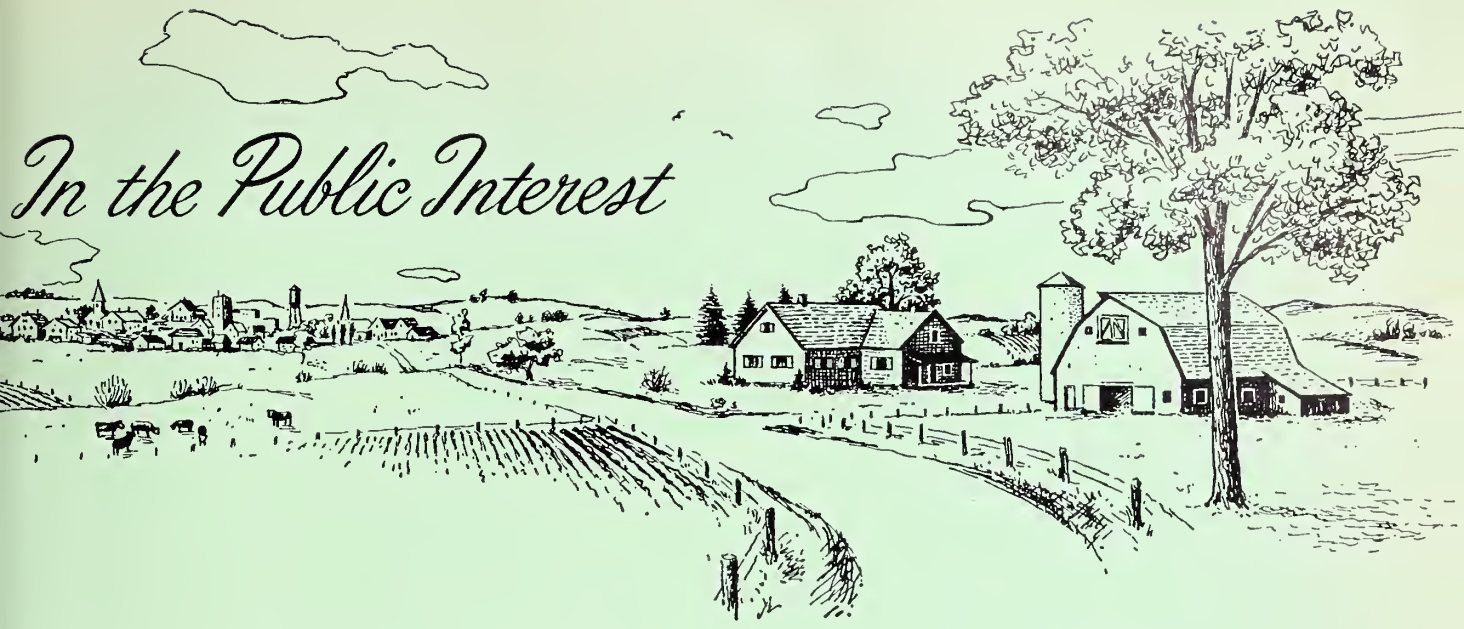

Doctors Wish the Adoption of the Keogh Bill Rather Than an Iowa Professional Corporations Act

Doctors of medicine would like to have tax advantages like those that employees of corporations have enjoyed since 1942, but they are quite willing to forego them rather than see the Iowa Medical Practice Act weakened.

Self-employed people such as physicians, lawyers, dentists, accountants and individual or partner owners of stores have no opportunity, at present, to put money into pension funds tax free for their own future benefit or for that of their employees.

Two remedies have been proposed. First is the Keogh Bill, which has been before Congress for several years and which has been passed by the House of Representatives a time or two. It would allow an income-tax deferment to the self-employed on money they might put into a pension fund for themselves, up to a certain limit, provided that they made proportionate contributions to a pension fund for each of their respective employees. The money would be taxable only when it was paid out, in monthly installments to the pensioner following his retirement, or to his beneficiary in the case of his death.

Second are the professional corporation acts, or their equivalents, which have been passed in 20 states and which are designed to let doctors, lawyers, etc., be taxed as corporations. By becoming, in effect, the employees as well as the stockholders of such corporations, professional men could hope to avail themselves of the right to tax deferment on money paid into pension funds for their future benefit. Such a proposal was submitted to the 1961 General Assembly of Iowa (H.F. 417), but was not acted upon. A similar bill undoubtedly will be introduced during the 1963 session.

THE KEOGH BILL IS THE PREFERABLE MECHANISM

The Keogh Bill apparently has the grudging approval of the U. S. Treasury Department, though of course the Treasury is not particularly happy about any measure that will reduce the government's income. Thus there is a good chance of its eventual adoption, and if it does pass, it will do much that needs to be done to correct the present inequity. Whereas there is a great deal of doubt that a solo practitioner of medicine or law could incorporate himself to attain the desired tax deferment, such an individual could avail himself of the privilege granted under the Keogh arrangement, if he wished to do so. All employees of professional men or nonincorporated businessmen under the Keogh Bill's provisions, would have to be given pension plans after no more than two or three years at their jobs, and if they left work prior to retirement, they could withdraw all of the money that had been deposited or had accumulated to their credit.

PROFESSIONAL CORPORATION ACTS MIGHT NOT BE EFFECTIVE

Technics designed to qualify physicians or lawyers for taxation as corporations, on the other hand, seem unlikely to accomplish their objective

with any degree of promptness, chiefly because the Internal Revenue Service appears unalterably opposed to them. The Kintner group of physicians, in Montana, formed themselves into an "association" several years ago, and after a protracted law suit, established their right to be treated as a corporation for tax purposes. But in November, 1960, the I.R.S. set up five criteria which subsequently-formed groups of that sort must satisfy if they are to be accorded like treatment. Among other things, each applicant organization must demonstrate that the transferability of its shares of stock is subject to no restrictions, and that its board of directors establishes and enforces policies to which all employee practitioners must adhere. The professional corporation acts that have since been adopted in various states are intended to enable groups of practitioners to meet those requirements, but the I.R.S. has chosen to pass upon the application of each group individually and can be expected not only to be painfully slow in making decisions but also to devise additional hurdles for the applicants to surmount.

AN IMPORTANT JUDICIAL PRINCIPLE IS ENDANGERED

Expensive delays, however, aren't the only undesirable consequences that might follow the passage of an Iowa professional corporations act. It can be argued that a corporation consisting entirely of physician shareholders, or one made up entirely of lawyer shareholders, could be relied upon to practice more knowledgeably, and to protect the interests of the patients or clients more satisfactorily, than a corporation in which laymen were part-owners. But even an all-doctor or all-lawyer corporation couldn't permit complete freedom to its "employees" in the management of individual cases, and thus the doctor-patient or lawyer-client relationship would be compromised to a greater or lesser degree. A board of directors shouldn't have the final word where lives are vitally concerned and where either compassion or equity should be paramount.

Any such measure could help to overturn the judicially established principle which forbids a corporation from practicing any of the learned professions. The courts have consistently held that this rule is implicit in the statutes which require a licensee to have completed a specified course of study, to have passed certain examinations, and to possess high moral character—accomplishments that are possible for human beings, but not for merely legal entities such as corporations.

The principle that corporations may not practice the learned professions has already been eroded, to some extent, by exceptions under which employers, in workmen's compensation cases, can choose the type of medical treatment that their employees are to receive, and under which professional men of various sorts are employed, on either a part- or full-time basis, to handle whatever cases their employers may assign to them. Moreover, there are people outside the professions of medicine and law who are delighted to see professional corporation acts adopted in the various states, precisely because they think such measures will spell the doom of the judicial principle in question.

Professional organizations aren't in complete agreement as to the ethics of corporate organization. The Judicial Council of the American Medical Association has ruled that no serious ethical problem is involved in the formation of professional corporations under the proper legislation, and the American Bar Association has reinterpreted its Canons of Ethics to allow its members to participate in certain instances. But the American Institute of Accountants has ruled that corporate practice would be unethical for its members.

The Iowa Medical Society continues to endorse the Keogh Bill as the best way of righting the existing inequity. It would prefer *not* to see a professional corporations act passed by the General Assembly, for the reasons that have been stated above, and also because the employee-stockholders of any physicians' corporation would be brought into the Social Security System—something that a majority of IMS members have indicated that they prefer to avoid.

The IMS House of Delegates, at its meeting on May 16, 1962, voted to have the Society "remain outside of such legislative activity" for the time being. The Society seriously doubts the desirability of letting professional men adopt the corporation form of organization, and it thinks that some more time should be allowed to elapse in the hope either that Congress will pass the Keogh Bill or that the I.R.S. will announce a definite policy about the tax deferment it will permit to non-traditional groupings of professional men.

The Society suggests, however, that if a proposal resembling H.F. 417 is to be submitted to the 1963 General Assembly of Iowa, it should certainly contain a section specifically affirming the judicial principle that corporations may not engage in the practice of learned professions in this state.

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Crumpton, Mrs. R. C.
Howar, Mrs. B. F.
Ledogar, Mrs. J. A.
Paschal, Mrs. G. A.
Patterson, Mrs. R. A.
Ptacek, Mrs. J. L.
Rambo, Mrs. E. F.

JEFFERSON COUNTY

Fairfield

Castell, Mrs. J. W.
Cook, Mrs. K. G.
Dunlevy, Mrs. J. H.
Egli, Mrs. E. E.
Gittler, Mrs. Ludwig
McClurg, Mrs. F. H.
Morgan, Mrs. J. N.
Ryan, Mrs. R. A.
Strong, Mrs. K. H.
Turner, Mrs. J. H.
Watson, Mrs. C. F.

LEE COUNTY (NORTH)

Fort Madison

Adams, Mrs. L. E.
Archibald, Mrs. M. H.
Casey, Mrs. J. M.
De Lashmutt, Mrs. E. J.
Dierker, Mrs. L. J.
Doering, Mrs. V. T.
Feightner, Mrs. R. L.
Grimwood, Mrs. W. H.
Harper, Mrs. G. E.
Harper, Mrs. H. D.
Healy, Mrs. J. D.
Helling, Mrs. H. B.
Kasten, Mrs. W. C.
McGee, Mrs. J. E.
McGinnis, Mrs. G. C.
McIllece, Mrs. R. C.
McMillan, Mrs. G. J.
Murphy, Mrs. R. E.
Noble, Mrs. F. W.
Polit, Mrs. Jaime
Reimers, Mrs. R. S.
Richmond, Mrs. A. C.
Richmond, Mrs. F. R., Jr.
Schrier, Mrs. H. L.
Werner, Mrs. H. T.

West Point

Poepsel, Mrs. F. L.

LYON COUNTY

George

Gessford, Mrs. H. H.
Lavender, Mrs. J. G.

Inwood

Bullock, Mrs. G. D.

Rock Rapids

Cook, Mrs. S. H.
Griesy, Mrs. C. V.
Powers, Mrs. D. W.
Wubbena, Mrs. A. C.

MAHASKA COUNTY

Fremont

Duncan, Mrs. Ellis

New Sharon

Phelps, Mrs. R. E.

Oskaloosa

Alberti, Mrs. R. L.
Atkinson, Mrs. G. S.
Bennett, Mrs. G. W.
Bos, Mrs. H. C.
Campbell, Mrs. D. K.
Campbell, Mrs. W. V.
Catterson, Mrs. L. F.
Clark, Mrs. G. H.
Collison, Mrs. R. M.
Gillett, Mrs. F. A.
Grahek, Mrs. L. J.
Lemon, Mrs. K. M.
Smith, Mrs. S. A.
Voigt, Mrs. F. O.
Wilcox, Mrs. E. B.

MARION COUNTY

Knoxville

Arnott, Mrs. G. M.
Burroughs, Mrs. C. R.
Clark, Mrs. T. D.
Hake, Mrs. D. H.
Mater, Mrs. D. A.
Ralston, Mrs. F. P.
Sloterdyke, Mrs. Yme

Pella

Van Zee, Mrs. G. K.

MARSHALL COUNTY

Marshalltown

Carpenter, Mrs. R. C.
Cloud, Mrs. A. B.
Crandall, Mrs. J. S.
Garland, Mrs. J. C.
Goodman, Mrs. L. O.
Hansen, Mrs. R. R.
Heise, Mrs. H. R.
Jacobs, Mrs. E. L.
Jeffries, Mrs. M. E.
Keyser, Mrs. E. L.
Kruse, Mrs. R. H.
Marble, Mrs. E. J.
Marble, Mrs. W. P.
Reading, Mrs. D. S.
Sauer, Mrs. H. E.
Schroeder, Mrs. A. J.
Sheeler, Mrs. I. H.
Shultz, Mrs. W. T.
Sinning, Mrs. J. E.
Southwick, Mrs. W. W.
Watt, Mrs. R. H.
Wells, Mrs. R. C.
Wessels, Mrs. W. R.
Wolfe, Mrs. O. D.
Wolfe, Mrs. R. M.

State Center

Robinson, Mrs. R. G.
Sokol, Mrs. C. R.

MONONA COUNTY

Mapleton

Ganzhorn, Mrs. H. L.
Ingham, Mrs. P. G.

Moorhead

Stauch, Mrs. M. O.

Onawa

Garred, Mrs. W. P.
Gaukel, Mrs. L. A.
Gingles, Mrs. E. E.
McClellan, Mrs. J. W.
Wolpert, Mrs. P. L.

Ute

Liska, Mrs. E. J.

Whiting

Garred, Mrs. J. L.

MONTGOMERY COUNTY

Red Oak

Alden, Mrs. Oscar
Bastron, Mrs. H. C.
Fickel, Mrs. J. D.
Hansen, Mrs. F. A.
Skallerup, Mrs. G. M.
Smith, Mrs. S. R.
Sorensen, Mrs. E. M.
Thomsen, Mrs. T. F.

Villisca

Croxdale, Mrs. E. L.
Poore, Mrs. S. D.

OSCEOLA COUNTY

Harris

Paulsen, Mrs. H. B.

Sibley

Carroll, Mrs. T. J.
O'Leary, Mrs. F. B.
Rizzo, Mrs. Frank
Thomas, Mrs. J. H.

PAGE COUNTY

Clarinda

Bossingham, Mrs. E. N.
Catlin, Mrs. K. A.
Frenkel, Mrs. H. S.
Jensen, Mrs. K. V.
Johnson, Mrs. N. M.
Kuehn, Mrs. W. O.
Niver, Mrs. E. O.
Shonka, Mrs. T. E.
Sperry, Mrs. F. S.

Shenandoah

Brush, Mrs. C. H.
Eisenach, Mrs. J. R.
Gee, Mrs. K. J.
Gottsch, Mrs. E. J.
Henstorf, Mrs. H. R.
Powers, Mrs. G. H.
Strathman, Mrs. L. C.

Sidney

Pettipiece, Mrs. Clayton

Cheyenne, Wyoming

Flynn, Mrs. C. H.

PALO ALTO COUNTY

Algona

Plott, Mrs. C. L.

Emmetsburg

Brereton, Mrs. H. L.
Brink, Mrs. J. R.
Coffey, Mrs. J. L.
Moore, Mrs. C. C.
Powers, Mrs. H. A.
Wigdahl, Mrs. L. O.

Mallard

Keeney, Mrs. G. H.

POCAHONTAS COUNTY

Gilmore City

Smith, Mrs. C. J.

Laurens

Gannon, Mrs. James
Pitluck, Mrs. H. L.

Pocahontas

Rhodes, Mrs. J. M.

Rolfe

Loxterkamp, Mrs. E. O.

POLK COUNTY

Ankeny

Hach, Mrs. F. T.
Nielsen, Mrs. A. T.

Des Moines

Abbott, Mrs. W. D.
Alberts, Mrs. M. E.
Allender, Mrs. R. B.
Amick, Mrs. P. P.
Anderson, Mrs. H. N.
Anderson, Mrs. R. W.
Augspurger, Mrs. B. B.

Baker, Mrs. W. E.
Bakody, Mrs. J. T.
Bates, Mrs. M. T.
Birge, Mrs. R. F.
Blair, Mrs. D. W.
Blount, Mrs. H. C., Jr.
Bond, Mrs. T. A.
Bone, Mrs. H. C.
Brown, Mrs. A. W.
Bruner, Mrs. J. M.
Burcham, Mrs. T. A.
Burcham, Mrs. T. A., Jr.
Burgeson, Mrs. F. M.
Burke, Mrs. E. T.
Burns, Mrs. Harry
Burr, Mrs. C. L.
Carter, Mrs. R. E.
Cash, Mrs. P. T.
Caudill, Mrs. G. G.
Chambers, Mrs. J. W.
Chase, Mrs. W. B., Jr.
Chase, Mrs. W. B., Sr.
Clemens, Mrs. A. L.
Coleman, Mrs. F. C.
Corn, Mrs. H. H.
Coughlan, Mrs. D. W.
Cromwell, Mrs. J. O.
Crowley, Mrs. D. F., Jr.
Culbertson, Mrs. R. A.
Dahl, Mrs. H. W.
Decker, Mrs. H. G.
de Gravelles, Mrs. W. D., Jr.
Dickens, Mrs. J. H.
Dorner, Mrs. R. A.
Downing, Mrs. A. H.
Downing, Mrs. J. A.
Drew, Mrs. E. J.
Dubansky, Mrs. M. H.
Dyson, Mrs. R. E.
Elliott, Mrs. O. A.
Ellis, Mrs. H. G.
Ely, Mrs. L. O.
Fatland, Mrs. J. L.
Foss, Mrs. R. H.
Fraser, Mrs. J. B.
From, Mrs. Paul
Gangeness, Mrs. L. G.
Gibson, Mrs. D. N.
Gibson, Mrs. P. E.
Glomset, Mrs. D. A.
Goldberg, Mrs. Louis
Gordon, Mrs. A. M.
Green, Mrs. J. W., Jr.
Greenhill, Mrs. Solomon
Gurau, Mrs. H. H.
Gutenkauf, Mrs. C. H.
Haines, Mrs. D. J.
Hammer, Mrs. R. W.
Hansell, Mrs. W. W.
Harnagel, Mrs. E. J.
Hayek, Mrs. J. N.
Hayne, Mrs. R. A.
Heeren, Mrs. R. H.
Helseth, Mrs. C. T.
Hertko, Mrs. E. J.
Hess, Mrs. John, Jr.
Hill, Mrs. L. F.
Hines, Mrs. R. E.
Hirsch, Mrs. M. R.
Hoffmann, Mrs. R. W.
Holzworth, Mrs. P. R.
Hornaday, Mrs. W. R., Jr.
Hornaday, Mrs. W. R., Sr.
Hughes, Mrs. P. K.
Hull, Mrs. C. N.
Huston, Mrs. K. G.
Irving, Mrs. N. W., Jr.
James, Mrs. D. W.
Jenkins, Mrs. H. F., Jr.,
Johnson, Mrs. C. O.
Johnson, Mrs. R. M.
Johnston, Mrs. C. H.
Kast, Mrs. D. H.
Katzman, Mrs. F. S.
Kelley, Mrs. J. H.
Kelly, Mrs. D. H.
Kelly, Mrs. D. H., Jr.
Kelsey, Mrs. J. E.
Kern, Mrs. G. A.
Kilgore, Mrs. B. F.
Kleinberg, Mrs. H. E.
Klocksiem, Mrs. H. L.
Knox, Mrs. R. M.
Koons, Mrs. C. H.
La Mar, Mrs. J. W.
Lambrecht, Mrs. P. B.
Latchem, Mrs. C. W.
Lawler, Mrs. M. P., Jr.
Losh, Mrs. C. W., Jr.
Lovejoy, Mrs. E. P.
Lowry, Mrs. E. C.
Lulu, Mrs. D. J.
Maher, Mrs. L. L.
Mark, Mrs. M. S.
Marquis, Mrs. G. S.
Matheson, Mrs. J. H.
McBride, Mrs. D. F.
McClean, Mrs. E. D.
McCoy, Mrs. H. J.
McGarvey, Mrs. N. J.
McGeehon, Mrs. R. C.
McNamee, Mrs. J. H.
Meredith, Mrs. L. K.
Merillat, Mrs. H. C.
Merkel, Mrs. A. E.
Merkel, Mrs. B. M.
Meservey, Mrs. M. A., Jr.
Minassian, Mrs. T. A.
Mooney, Mrs. J. C.
Moore, Mrs. F. A.
Moore, Mrs. R. M.
Morrison, Mrs. J. R.
Morrissey, Mrs. W. J.
Mountain, Mrs. G. E.
Myerly, Mrs. W. H.
Newland, Mrs. D. O.
Nielsen, Mrs. G. E.
Nitzke, Mrs. E. A.
Noun, Mrs. L. J.
Noun, Mrs. M. H.
Olsen, Mrs. M. I.
Olson, Mrs. S. O.
Ortiz, Mrs. Rafael
Parson, Mrs. V. G.
Paul, Mrs. R. E.
Payne, Mrs. H. C.
Pearlman, Mrs. L. R.
Peisen, Mrs. C. J.
Peterson, Mrs. L. G.
Phillips, Mrs. A. B.
Posner, Mrs. E. R., Jr.
Powell, Mrs. L. D.
Priestley, Mrs. J. B.
Purdy, Mrs. W. O.
Putnam, Mrs. C. L.
Ravreby, Mrs. M. D.
Redfield, Mrs. E. L.
Reed, Mrs. R. J.
Riegelman, Mrs. R. H.
Rindskopf, Mrs. Wallace
Robinson, Mrs. V. C.
Rotkow, Mrs. M. J.
Royal, Mrs. M. A.
Ryan, Mrs. J. W., Jr.
Sands, Mrs. S. L.
Sands, Mrs. W. W.
Schill, Mrs. A. E.
Schissel, Mrs. D. J.
Schlasser, Mrs. V. L.
Schropp, Mrs. R. C.
Shepherd, Mrs. L. K.
Shiffler, Mrs. H. K.
Shinkle, Mrs. W. C.
Silk, Mrs. Marvin
Skultety, Mrs. J. A.
Smith, Mrs. A. N.
Smith, Mrs. H. J.
Smith, Mrs. L. D.
Smythe, Mrs. A. M.
Socarras, Mrs. Alfredo
Sohm, Mrs. H. A.
Sones, Mrs. C. A.
Speers, Mrs. J. F.
Springer, Mrs. F. A.
Stephens, Mrs. R. R.
Steves, Mrs. R. J.
Stickler, Mrs. R. B.
Summers, Mrs. T. B.
Teigland, Mrs. J. D.
Thomsen, Mrs. J. G.
Thornton, Mrs. F. E.
Throckmorton, Mrs. J. F.
Throckmorton, Mrs. T. B.
Throckmorton, Mrs. T. D.
Toubes, Mrs. A. A.
Turner, Mrs. H. V.
Tyrrell, Mrs. J. W.
Updegraff, Mrs. R. R.
Vorisek, Mrs. E. A.
Walter, Mrs. D. J.
Watters, Mrs. G. H.
Weingart, Mrs. J. S.
Wheeler, Mrs. R. A.
White, Mrs. G. H.
Wichern, Mrs. H. E.
Wirtz, Mrs. D. C.
Woodburn, Mrs. C. C.
Young, Mrs. D. C.
Young, Mrs. G. G.
Zaharis, Mrs. G. M.
Zoeckler, Mrs. S. J.

Huxley

Nelson, Mrs. A. L.

Indianola

Cornish, Mrs. L. R.
Porter, Mrs. L. W.
Trueblood, Mrs. C. A.
Yugend, Mrs. S. F.

Norwalk

Cunningham, Mrs. M. B.

West Des Moines

Dusdieker, Mrs. S. W.
Gustafson, Mrs. J. E.
Overton, Mrs. R. W.
Peterson, Mrs. C. R.
Sternagel, Mrs. Fred
Van Natta, Mrs. C. W.

POTTAWATTAMIE COUNTY

Council Bluffs

Bean, Mrs. E. O.
Beaumont, Mrs. F. H.
Bierman, Mrs. M. H.
Cogley, Mrs. J. P.
Cohen, Mrs. S. A.
Collignon, Mrs. U. J.
Conlon, Mrs. J. B.
Edwards, Mrs. C. V.
Edwards, Mrs. C. V., Jr.
Floersch, Mrs. E. B.
Giles, Mrs. W. C.
Griffith, Mrs. W. O.
Guggenheim, Mrs. Paul
Hanssmann, Mrs. I. J.
Hennessy, Mrs. J. D.
Hirst, Mrs. D. V.
Hombach, Mrs. W. P.
Hopp, Mrs. R. L.
Howard, Mrs. L. G.
Klok, Mrs. G. J.
Krettek, Mrs. J. E.
Kruml, Mrs. J. G.
Landry, Mrs. G. R.
Lowry, Mrs. C. F.
Mahoney, Mrs. J. D.
Margules, Mrs. M. P.
Marsh, Mrs. F. E., Jr.
Martin, Mrs. L. R.
Mathiasen, Mrs. E. B.
Mathiasen, Mrs. H. W.
Mathiasen, Mrs. J. W.
Noziska, Mrs. C. R.
Ozaydin, Mrs. I. M.
Pedersen, Mrs. A. M.
Pedersen, Mrs. P. D.
Pester, Mrs. G. H.
Richardson, Mrs. F. H.
Selo, Mrs. R. A.
Sternhill, Mrs. Isaac
Stroy, Mrs. D. T.
Trafton, Mrs. H. F.
Warden, Mrs. D. D.
Weir, Mrs. E. C.
West, Mrs. A. G.

Minden

Olsen, Mrs. M. E.

SCOTT COUNTY

Bettendorf

Agnew, Mrs. J. W.
Altman, Mrs. S. J.
Benfer, Mrs. M. M.
Byrum, Mrs. R. J.
Gibson, Mrs. P. E.
Hendricks, Mrs. A. B.
Hollander, Mrs. W. M.
Houghton, Mrs. E. J.
Kimberly, Mrs. L. W.
Kulp, Mrs. R. R.
Motto, Mrs. E. A.
Ott, Mrs. M. D.
Smith, Mrs. R. T.
Sorenson, Mrs. A. C.
TouVelle, Mrs. A. R.
Towle, Mrs. R. A.
Van Wetzinga, Mrs. R. J.
Weis, Mrs. H. A.

Davenport

Anderson, Mrs. E. W.
Anrode, Mrs. R. A.
Balzer, Mrs. W. J.
Berger, Mrs. R. A.
Bessmer, Mrs. W. G.

Bishop, Mrs. J. F.
Boone, Mrs. A. W.
Braunlich, Mrs. George
Brown, Mrs. M. J.
Collins, Mrs. J. F.
Crowley, Mrs. P. J.
Cunnick, Mrs. P. C.
Cunningham, Mrs. G. D.
Cusick, Mrs. G. W.
Daut, Mrs. R. V.
Decker, Mrs. C. E.
Donahue, Mrs. J. C.
Edgerton, Mrs. E. D.
Erikson, Mrs. R. E.
Fesenmeyer, Mrs. C. R.
Flynn, Mrs. C. A.
Foley, Mrs. R. J.
Goenne, Mrs. R. E.
Goenne, Mrs. W. C.
Goldman, Mrs. B. R.
Gray, Mrs. G. W.
Hands, Mrs. S. G.
Hurevitz, Mrs. H. M.
Kehoe, Mrs. J. L.
Kohrs, Mrs. E. E.
Kuhl, Mrs. A. B., Jr.
Lamb, Mrs. F. H.
Larson, Mrs. Erling, Jr.
Lenzmeier, Mrs. A. J.
Losasso, Mrs. D. A.
McConnell, Mrs. R. W.
McKay, Mrs. K. H.
McMeans, Mrs. T. W.
Manning, Mrs. E. L.
Marker, Mrs. J. I.
Matthey, Mrs. C. H.
Miltner, Mrs. L. J.
Neufeld, Mrs. Robert
Perkins, Mrs. R. M.
Pheteplace, Mrs. W. S.
Preacher, Mrs. C. D.
Rock, Mrs. J. G.
Senty, Mrs. E. G.
Shafer, Mrs. A. W.
Smazal, Mrs. S. F.
Stimac, Mrs. E. M.
Syverud, Mrs. J. M.
Van Hecke, Mrs. D. C.
Weaver, Mrs. D. F.
Weinberg, Mrs. H. B.
Zukerman, Mrs. C. M.

Eldridge

Lagoni, Mrs. R. P.

SHELBY COUNTY

Avoca

Huntley, Mrs. C. C.
West, Mrs. N. D.

Elk Horn

Larson, Mrs. G. E.

Harlan

Bisgard, Mrs. C. V.
Dohnalek, Mrs. D. W.
Donlin, Mrs. R. E.
Larsen, Mrs. L. V.
Markham, Mrs. W. S.
Ryan, Mrs. A. J.
Spearing, Mrs. J. H.

Shelby

Crane, Mrs. D. D.

SIOUX COUNTY

Hawarden

Eneboe, Mrs. E. M.
Larson, Mrs. M. O.

Hull

Swanson, Mrs. K. R.

Orange City

Bushmer, Mrs. Alexander
Doornink, Mrs. William
Grossman, Mrs. E. B.
Hassebroek, Mrs. R. J.

Rock Valley

Hegg, Mrs. L. R.

Sioux Center

Kiernan, Mrs. T. E.
McGilvra, Mrs. A. L.
Oelrich, Mrs. C. D.

WAPELLO COUNTY

Ottumwa

Anthony, Mrs. W. E.
Austin, Mrs. A. T.
Blome, Mrs. A. L.
Blome, Mrs. G. C.
Bovenmyer, Mrs. D. O.
Brody, Mrs. Sidney
Coppoc, Mrs. L. E.
Dalager, Mrs. R. D.
Downs, Mrs. V. S.
Ebinger, Mrs. E. W.
Ekart, Mrs. P. I.
Emanuel, Mrs. D. G.
Emerson, Mrs. D. D.
Fox, Mrs. Stephan
Gugle, Mrs. L. J.
Hastings, Mrs. R. A.
Homan, Mrs. D. O.
Howell, Mrs. E. B.
Ireland, Mrs. W. W.
Johnson, Mrs. G. R.
Kingsbury, Mrs. K. R.
Lister, Mrs. K. E.
McIntosh, Mrs. P. D.
Maixner, Mrs. R. R.
Maixner, Mrs. W. D.
Melampy, Mrs. C. N.
Meyers, Mrs. R. P.
Moore, Mrs. Martin
Morgan, Mrs. F. W.
Nelson, Mrs. F. L.
Prewitt, Mrs. L. H.
Rater, Mrs. D. L.
Ritter, Mrs. J. A.
Roberts, Mrs. J. B.
Scott, Mrs. P. W.
Singer, Mrs. S. F.
Spilman, Mrs. H. A.
Stewart, Mrs. J. H.
Vaughn, Mrs. V. J.
Vineyard, Mrs. T. L.
Webb, Mrs. J. B.
Wetrich, Mrs. D. W.
Whitehouse, Mrs. W. K.
Whitehouse, Mrs. W. N.
Wolfe, Mrs. W. C.
Wormhoudt, Mrs. H. L.

WEBSTER COUNTY

Fort Dodge

Acher, Mrs. A. E.
Baker, Mrs. C. J.
Beeh, Mrs. E. F.
Bock, Mrs. D. G.
Cooper, Mrs. D. C.
Coughlan, Mrs. C. H.
Dagle, Mrs. C. L.
Dannenbring, Mrs. F. G.
Dawson, Mrs. E. B.
Drown, Mrs. R. E.
Dunn, Mrs. R. C.
Echternacht, Mrs. A. P.
Egbert, Mrs. D. S.
Giles, Mrs. F. E.
Glesne, Mrs. O. N.
Gower, Mrs. W. E.
Hutchison, Mrs. R. M.
Kelly, Mrs. J. F.
Kersten, Mrs. H. H.
Kersten, Mrs. J. R.
Kersten, Mrs. P. M.
Kluever, Mrs. H. C.
Knowles, Mrs. F. L.
LaPorte, Mrs. P. A.
Larsen, Mrs. F. S.
Lee, Mrs. R. W.
Loeffelholz, Mrs. P. L.
McTaggart, Mrs. W. B.
Maltry, Mrs. Emile
Michelfelder, Mrs. T. J.
Moore, Mrs. E. E.
O'Brien, Mrs. L. J.
Otto, Mrs. P. C.
Safranek, Mrs. E. J.
Sanders, Mrs. M. G.
Schacht, Mrs. N. A.
Sebek, Mrs. R. O.
Stitt, Mrs. P. L.
Swanson, Mrs. E. M.
Sunner, Mrs. G. C.
Thatcher, Mrs. W. C.
Tripp, Mrs. R. C.
Tyler, Mrs. D. E.
Van Patten, Mrs. E. M.
Weyer, Mrs. J. J.
Wilcox, Mrs. K. M.
Woodard, Mrs. R. E.

Lehigh

Kiesling, Mrs. H. F.

WINNESHIEK COUNTY

Calmar

Miller, Mrs. Garfield

Decorah

Bullard, Mrs. J. A.
Dahlquist, Mrs. R. M.
Hagen, Mrs. E. F.
Larson, Mrs. L. E.
Wright, Mrs. D. W.

WOODBURY COUNTY

Sioux City

Arnold, Mrs. K. E.
Ayers, Mrs. L. J.
Berkstresser, Mrs. C. F.
Bettler, Mrs. P. L.
Beye, Mrs. C. L.
Blackstone, Mrs. M. A.
Blenderman, Mrs. A. D.
Blume, Mrs. D. B.
Boden, Mrs. W. C.
Boe, Mrs. Henry
Boggs, Mrs. L. H.
Bowers, Mrs. C. V.
Boysen, Mrs. J. F.
Brown, Mrs. C. A.
Burroughs, Mrs. H. H.
Bushnell, Mrs. J. W.
Caes, Mrs. H. J.
Callaghan, Mrs. A. J., Jr.
Collins, Mrs. L. E.
Coriden, Mrs. T. L.
Davey, Mrs. W. P.
Decker, Mrs. J. C.
Dimsdale, Mrs. L. J.
Donohue, Mrs. E. S.
Dougherty, Mrs. J. J.
Down, Mrs. H. I.
Dvorak, Mrs. J. E.
Englemann, Mrs. A. T.
Erickson, Mrs. E. D.
Frank, Mrs. L. J.
Gittins, Mrs. T. R.
Graham, Mrs. J. W.
Grossman, Mrs. M. D.
Harrington, Mrs. R. J.
Heimann, Mrs. V. R.
Hendrickson, Mrs. A. H.
Hicks, Mrs. W. K.
Hirsch, Mrs. H. N.
Honke, Mrs. E. M.
Horsley, Mrs. A. W.
Horst, Mrs. A. W.
Howard, Mrs. D. E.
Jacobs, Mrs. C. A.
Johnson, Mrs. A. Q.
Jones, Mrs. H. W.
Kaplan, Mrs. D. D.
Keane, Mrs. K. M.
Kelberg, Mrs. M. R.
Kelly, Mrs. A. H.
Kelly, Mrs. J. F.
Knott, Mrs. P. D.
Krigsten, Mrs. J. M.
Larimer, Mrs. R. C., Jr.
Larimer, Mrs. R. N.
Leiter, Mrs. H. C.
Lohr, Mrs. F. J.
Lutton, Mrs. J. D.
McBride, Mrs. R. H.
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The General Practice Training Program at Broadlawns-Polk County Hospital

ROBERT E. CARTER, M.D.
Iowa City,

In July, 1962, the first physician entered the new two-year General Practice Training Program at Broadlawns-Polk County Hospital in Des Moines, Iowa. This event has sufficient significance for medical practice in this state so that the Hospital and the College of Medicine of the State University of Iowa feel that physicians not familiar with details of the program are sure to be interested in its development and future prospects.

BACKGROUND FOR THIS DEVELOPMENT

After two years of preliminary planning, an affiliation between the College of Medicine of the State University and Broadlawns-Polk County Hospital was established in January, 1962. Originally requested by interested physicians in the Des Moines area and actively encouraged by Dean Nelson, this affiliation represents the first advisory effort of the College of Medicine in teaching activities outside Iowa City. The central point of the affiliation was the creation of a new training program for physicians entering general practice. The Council on Medical Education and Hospitals of the American Medical Association had studied various proposals for several years, and the AMA House of Delegates had authorized the creation of so-called family practice training programs in 1959. These original two-year programs emphasized medicine, pediatrics and psychiatry, often to the exclusion of surgery and obstetrics. The first programs, established in four locations in the United States, were opposed by certain groups on the grounds that obstetrical and surgical training were essential parts of the training of any general physician. Mindful of this strong counterview, the American Medical Association in 1961 approved the creation of general practice training programs including surgery and obstetrics. The Broadlawns-State University of Iowa program is one of ten family and general practice programs established to date in this country, and is among the minority which include programmed obstetrical and surgical experience.

The College of Medicine recognized that an effective general practice training program could not be established in the University Hospitals in Iowa City. Several university hospitals had previously attempted specialty and general training in the same location to the detriment of the general training program. Broadlawns Hospital, however, provided an ideal setting for effective training under the direction of the hospital staff and with the active support of the College of Medicine.

THE COURSE OF STUDY

Extensive consultation with Iowa general practitioners, the American Academy of General Practice, the Council on Medical Education and Hospitals of the American Medical Association and members of the faculty of the College of Medicine preceded the introduction of the Broadlawns Plan. This plan has one central theme, to allow the medical school graduate two years of supervised general practice in the hospital environment before he enters solo or group practice. Students enter the program upon graduation from medical school. Based on the theory that supervised doing is the best learning, the trainee is a practicing general physician from the first day he enters the plan. He runs his own "office" practice in the Outpatient Area. Replacing the old pattern of assignment to specialty outpatient clinics, the trainee has three to four half days a week when he sees his own patients drawn from the hospital clientele. These patients are scheduled for him exactly as they would be in a private office and he may follow the same patient for a two year period with whatever frequency he desires. He may select his patients to build a representative practice, relying on the counsel of an experienced supervising general practitioner. When the trainee and the supervising general physician feel a patient requires additional specialty opinion, the trainee may schedule his patient to be seen in any one of twelve specialty clinics. Here the trainee does not lose touch with the patient, but he and the consultant see the patient together. Although the trainee may also participate in certain specialty clinics aside from this referral of his own patients, he is en-

Dr. Carter is an associate professor of pediatrics and assistant dean of the College of Medicine, State University of Iowa, Iowa City, Iowa. He is currently assigned at Broadlawns Hospital as director of education to implement the affiliation program with the State University of Iowa.

couraged to devote the greater part of his time to the sequential observation of his own cases.

Inpatient assignments during the first year emphasize medical rather than surgical services. In the second year, the reverse is true. The trainee is assigned simultaneously to Medicine and Pediatrics for 10 months during his first year. This double assignment gives him the opportunity to follow as many of his outpatients as possible when they require hospitalization. In addition to caring for those of his own patients who are admitted on either service, the trainee will be assigned appropriate additional cases for the sake of their teaching value, and will continue to follow them in his outpatient clinic after their release from the hospital. Three months of his medical assignment are to be spent on Psychiatry. Teaching rounds and outpatient schedules will be arranged to permit the trainee full participation in the important activities of each concurrently assigned service.

The remaining two months of the first year are devoted to Obstetrics. This period is scheduled toward the end of the year to permit the trainee to follow in his outpatient clinic those women whose due dates coincide with his inpatient obstetrical assignment. He will have opportunities to deliver other mothers as well, and to follow both the mother and child in his clinic for the remainder of his training period.

Inpatient assignments in the second year will include four months of Surgery and two months of Obstetrics and Gynecology. On Surgery, the trainee will be specifically taught those procedures which physicians starting general practice are allowed to perform in the majority of Iowa hospitals. The surgical rotation is not designed to produce a "half-trained" surgeon. It is designed to provide experience in the initial management of major trauma, the definitive therapy of minor trauma and pre and postoperative care of the patient having major surgery. The trainee will be given a sound basis for possible further surgical training, should he desire and should his area of practice permit. In his second rotation on Obstetrics, the trainee will continue to deliver his own and other appropriate patients, but will also have specific experience in "office-type" gynecologic procedures.

Two months of Pediatrics are scheduled in the second year, when the trainee will be introduced to specialized areas including the newborn and premature nurseries. The remaining four months of the second year will constitute an elective period, permitting the trainee to emphasize one or two major areas of their previous training. Two additional months on Surgery and two additional months on Obstetrics are available. Or, if his interest is medical, the trainee may select medical specialties, including electrocardiography, dermatology or hematology. Anesthesia and radiology or additional psychiatry are also offered.

BROAD OBJECTIVES

The General Practice Training Program at Broadlawns has two objectives. First, it should enable a young physician to enter general practice with competence and confidence. Second, it may show more young physicians that general practice is more stimulating and rewarding than is a limited medical viewpoint. Is a two-year period long enough to complete the medical student's preparation to enter general practice? The answer is yes, with the reminder that all of us must continue our education throughout the years of our practice. All physicians in practice know this. If they do not continue their education, it is because they are not provided the type of postgraduate training they need. Few general practitioners have time to educate the educators on the proper composition of postgraduate programs.

Is training for general practice necessary? Here, also, the answer is yes, provided correct training is given. The one-year rotating internship used to be enough when medicine was less complicated. Now, the knowledge and experience necessary to practice medicine safely dictates a two-year training program. But this training must be effectively supervised experience in general medicine, not a reshuffling of the specialty services which provided the student with basic training at the medical school level. Also, we must not forget that the rotating internship has changed in many hospitals. Where many residents are being trained in a highly compartmentalized type of medical practice, the intern is often a bystander, paying the price of a wasted year for only the hope of eternal salvation in the specialty field of his choice. The graduate of such an internship is not prepared for general medical practice.

Is general practice necessary? No thinking physician would ask this question, since he knows the answer. General practice is *very* necessary, and the number of physicians entering general practice *must* be sharply increased, both in rural and in metropolitan areas. We must train more doctors each year, and the majority of these physicians should take the general as distinguished from the specialized view of medicine. Specialists are also essential, but they do not constitute a strong foundation for medical practice in this or any other country. They are the necessary superstructure, and this superstructure can expand and prosper only when its base is secure. Perhaps one can find an indication that our specialist superstructure already may have outgrown its general practice foundation by giving close attention to the criticism our profession is receiving from the population of this country at the present time.

Status of Radioactive Fallout in Iowa

EDMUND G. ZIMMERER, M.D.
State Commissioner of Health

The amount of radioactivity reaching the environment has been monitored on a wide scale during the recent years. Several national networks for sampling air, surface water, and milk were established after the atmospheric testing of nuclear devices was instituted by the United States. These national networks represent cooperative efforts between the Public Health Service, the Atomic Energy Commission, state health departments, and local health units.

Sampling stations for air, the border rivers, and milk in these national networks are located in Iowa. A station for sampling the radioactivity in the atmosphere is located at Iowa City, and is operated on a seven-day week basis by the State Hygienic Laboratory. The other national network stations collect samples at less frequent intervals, ranging from twice weekly to twice monthly. In addition to the national networks, a program of monitoring is conducted by the State Hygienic Laboratory as a state program.

The data collected in the monitoring programs has indicated that, to date, the levels of radioactivity have not reached significant concentrations. The data also indicate that transient increases of radioactivity have been produced by weapons-testing activities, but that these concentrations return to a low range within a matter of days.

FEDERAL RADIATION COUNCIL

One problem arising in this regard was a need for authoritative standards for the effects on the population of exposures to radioactivity in various forms and degrees. The Federal Radiation Council was established in 1959 under Public Law 86-373, to provide a national policy on human radiation exposures.

This Council now has made two reports dealing with the development of radiation-protection standards, and one report on the health implications of fallout from nuclear weapons. Radiation-protection guides have been proposed, stated as the radiation dose which should not be exceeded without careful consideration of the reason for doing so. It is recommended that every effort should be made to encourage the maintenance of radiation doses as far below this guide as possible.

Report No. 2, issued by this Council in September, 1961, introduced the concept of three ranges of transient daily intake of radioactive materials. A graded system of action for each range was proposed for each range.

Range I covers levels that in normal conditions would not result in an appreciable portion of the population's being exposed to even a large fraction of the amount indicated as the maximum allowable in Radiation Protection Guide. The only action required is surveillance adequate to maintain information on the status. Range II covers levels that would be expected to result in average exposures to population groups not exceeding the RPG. This range calls for active surveillance and routine control. Range III covers levels that would be presumed to result in exposures exceeding the RPG if continued for a sufficient period of time. However, transient rates of intakes in this range could occur without the population's exceeding the RPG if the average annual intake fell within Range II or lower. Levels in this range should be evaluated with respect to the RPG, and if necessary, appropriate control or counter measures instituted.

MILK MONITORING

There is current interest in the reported levels of radioactivity in milk. The Milk Monitoring Program was established as a national network because milk is readily available, and is representative of environmental exposures. The Des Moines milk supply serves as the Iowa station in this network. These milk samples are routinely examined for Strontium-90, Strontium-89, Iodine-131, and Calcium. In addition, the State Hygienic Laboratory makes similar determinations on other Iowa milk supplies.

In considering these isotopes, the Federal Radiation Council has assigned concentration values in micromicrocuries per day for Ranges I, II, and III. As might be expected, these values differ for these isotopes. To date, the strontium concentrations reported have been low, reaching Range II only for transitory periods.

The levels established for Iodine-131 are 0-10 for Range I; 10-100 for Range II; and 100-1,000 for Range III. These levels were established on the basis of the potential effect on the thyroid glands of young children. If applied to adults, these ranges are subject to upward revision.

Since Iodine-131 has a half-life of about 8 days, it disappears from the atmosphere within a period of a few weeks after its production ceases. Soon

after the U. S. testing program was suspended, the Iodine-131 levels fell to the non-detectable range. This determination was discontinued until the Russian testing program in 1961.

The average Iodine-131 data reported for the Des Moines milk supply by the Public Health Service, expressed in micromicrocuries per liter, are shown below. The June average is not available to date.

Year	Month	Level
1961	October	210
	November	210
	December	30
1962	January	10
	February	Less than 10
	March	10
	April	Less than 10
	May	90

In a press release, the Public Health Service listed a level of 290 for the months of September and October, 1961. In this release, it was stated that the October average of 290 was also assigned as an estimate to the month of September, since no Iodine-131 determinations were made during that month. In the release, the overall average level of 80 was stated, along with the comment that this average was near the upper level of Range II.

This matter recently was reviewed by the Governor's Advisory Committee on Ionizing Radiation. Members of this Committee include Dr. Edmund G. Zimmerer, Commissioner of Public Health, Chairman; Dr. Titus E. Evans and Dr. Howard Jackson of the Radiation Research Laboratory; Dr. H. G. Hershey, Iowa Geological Survey; Dr. H. B. Latourette, Radiology Department, University Hospitals; Dr. R. L. Morris, State Hygienic Laboratory; and Dr. F. H. Spedding, Dr. A. F. Voigt, and Mr. Milo Voss, of the Institute of Atomic Research, Ames.

Attention was given to the fact that the fallout from the Russian tests was not appreciable in Iowa until the period of September 19 to 22, 1961, when Hurricane Carla recirculated fallout through the midwest. Attention also was given to the apparent discrepancy in the October levels reported. It was the consensus of the Committee that the level for Iodine-131 assigned to Iowa milk for September was extremely conservative, and was estimated higher than the true level. Attention was given to the concept that, if more accurate information was used, the average for Iowa milk would be below the 80 figure. It also was the consensus that the levels assigned to the three ranges for Iodine-131 were conservative; and there was no reason to be concerned on the reported levels at this time.

The Advisory Council for the Public Health Service has studied the radiation problems. In a recent report, the counter measures considered advisable in case the levels should reach, and stay in, Range III have been proposed. The Surgeon General of the Public Health Service has the authority to recommend the adoption of appropriate counter measures to the Commissioner of Public Health for application in states where evidence indicates a need. No such recommendation has been issued to date.

The AMA National Congress on Mental Illness and Health

The American Medical Association will hold its first National Congress on Mental Illness and Health in Chicago, October 4-6.

The purpose of this Congress, held with the cooperation of the American Psychiatric Association and the support of the National Association for Mental Health, is to implement the broad, new mental health program developed by the AMA's Council on Mental Health. This program represents years of study and discussion and draws heavily upon sources such as ACTION FOR MENTAL HEALTH, the AMA's Preliminary Conference on Mental Illness and Health, and meetings with the chairmen of the AMA's State Committees on Mental Health.

The three days of the Congress will be devoted to planning specific activities implementing the AMA program. There will be no formal presentation of papers or discussions leading to new position papers on mental health problems—the guidelines for the Congress are spelled out in the program. Participants will meet in both topical and regional discussion groups to develop coordinated and continuing mental health programs to be carried out at the national, state and local levels.

The topical meetings at the Congress will cover 21 subjects including research, hospital and community programs, personnel recruitment and physician education. Material developing from these discussions will then be brought up in the regional workshops. This format allows participants to first consider problems of special interest, decide on priorities for subsequent action in their state or region and then transform these considerations into positive programs tailored to the needs of their particular geographic area.

The American Medical Association hopes that as many physicians and interested citizens as possible will take part in the Congress. It also hopes that the participants will return to their respective states ready for action. The success of this Congress and the AMA program can only be measured by the positive steps taken by the conferees in the months and years following the meeting.

More detailed information on the Congress and copies of the AMA mental health program can be obtained from the Council on Mental Health, American Medical Association, 535 N. Dearborn Street, Chicago 10, Illinois.

Scientific Articles

A Rationale for the Use of

Insulin and Hypoglycemic Drugs In Diabetes

DANIEL B. STONE, M.B.
Iowa City

IT IS USEFUL to have a concept of the various methods of treating patients with diabetes mellitus. Figure 1 portrays our concept of the mountain of therapeutic problems.

At the foothill is the adult-type diabetic. Adult-type diabetes is common and usually starts after the age of 30. The adult-type diabetic is obese at onset, and does not tend to develop acidosis. He is insensitive to insulin, which means that accidental overdosage with insulin usually will *not* produce hypoglycemia. As you ascend the mountain you find that diabetes tends to become less common but more severe. At the summit is the juvenile-type diabetic. Juvenile-type diabetes usually starts under the age of 30, and is rare. The patient is insulin-dependent and tends to develop acidosis. He is also sensitive to insulin, which means that accidental overdosage will usually produce insulin shock.

All diabetics need diet therapy. Many adult-type diabetics also need oral hypoglycemic agents. Some adult-type diabetics and all juvenile-type diabetics need insulin. A few juvenile-type diabetics need not only diet and insulin but also DBI.

Dr. Stone, an associate professor of internal medicine at S.U.I., made this presentation at the Refresher Course for General Practitioners, in Iowa City, during February, 1962.

CHANGED INDICATIONS FOR ORAL HYPOGLYCEMIC AGENTS

The oral hypoglycemic agents tolbutamide, chlorpropamide and phenformin,* are effective mainly

* tolbutamide = Orinase (Upjohn); chlorpropamide = Diabinese (Pfizer); phenformin = D.B.I. (U. S. Vitamin and Pharmaceutical Corporation).

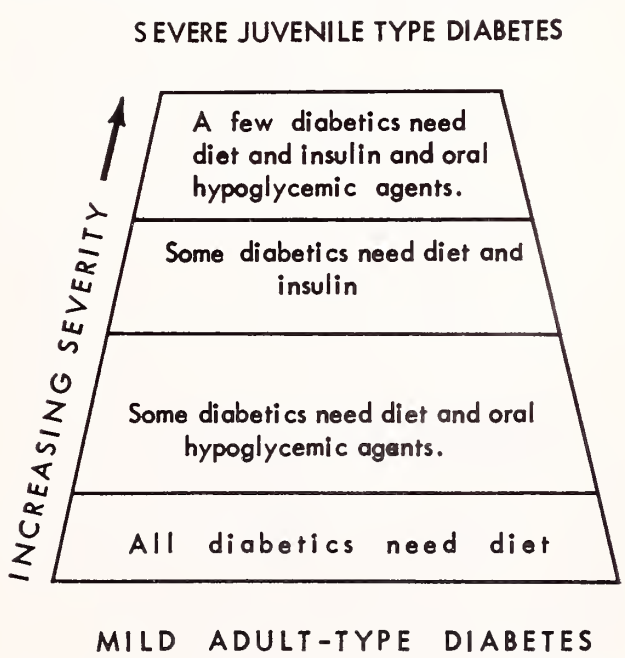

Figure 1. Our concept of the "mountain" of therapeutic problems in diabetes mellitus. At the foothill is the adult-type diabetes. As one ascends the "mountain," he finds that diabetes is less common but more severe.

in adult-type diabetes, and are usually contraindicated in insulin-dependent, or juvenile-type diabetes. Four recent advances have changed their status.

The first advance has been an extension of the indications for their use. Diabetics who needed more than 35 or 40 units of insulin have heretofore been considered unsuitable for these drugs. Singer and his colleagues[1] reported that about 40 per cent of adult-type diabetics responded to chlorpropamide despite the fact that they had previously needed more than 50 units of insulin daily. We have tried chlorpropamide in a few such patients under close supervision, and we agree with Singer's observations. We believe that one should never try to replace insulin with the oral hypoglycemic agents in a juvenile-type diabetic or in a patient with a history of diabetic acidosis.

The second advance has been an increase in dosage. A few years ago it was thought that the maintenance dose of tolbutamide was 1.0 or 1.5 Gm. daily. Bigger doses of tolbutamide, 2.0 to 4.0 or even 5.0 Gm. daily, seem to be safe and extend the range of effectiveness of this drug. A dose of tolbutamide provides an effective blood level for eight to ten hours, so that large doses should be split, about two-thirds being given before breakfast.

A third advance has been the use of combinations of oral drugs. Combined therapy with tolbutamide and phenformin or with chlorpropamide and phenformin controls effectively about 60 to 70 per cent of adult-type diabetics who are not controlled by one preparation alone.[2, 3]

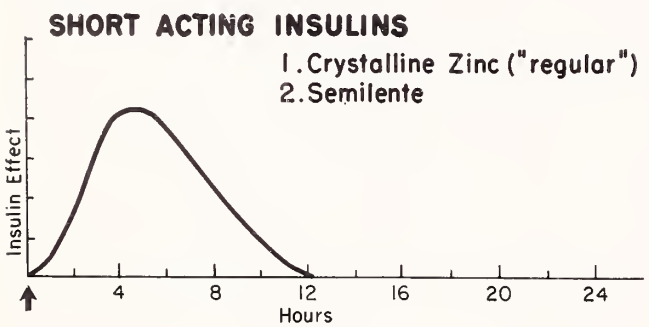

Figure 2.

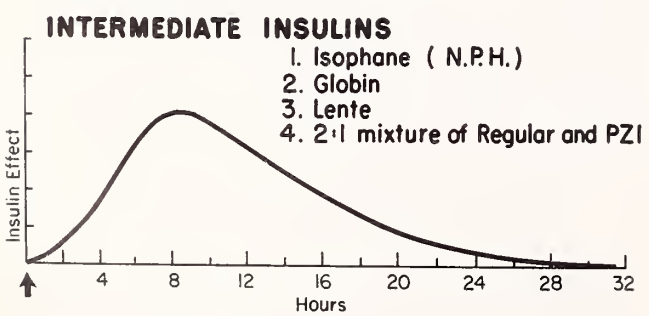

Figure 3.

TABLE 1

A SAMPLE OF THE DIABETIC CHARTS USED AT UNIVERSITY HOSPITALS

Day	Glycosuria 12 mn. to 6 a.m.	6 a.m. to Noon	Noon to 6 p.m.	6 p.m. to 12 mn.	Insulin	Blood Sugar a.m.	p.m.
	Bedtime to Breakfast	Breakfast to Lunch	Lunch to Supper	Supper to Bedtime			
1	2	1	4	2	Reg. 10-0-0 NPH 20-0-6	176	280
2							

The numbers in the "Insulin" column mean that the patient received 10 units of regular insulin and 20 units of NPH insulin before breakfast, no insulin at lunch time, and six units of NPH insulin before supper.

The fourth advance concerns phenformin. Unlike tolbutamide, phenformin has been shown to be of value when used, in addition to insulin, as a means of smoothing the control of the brittle or unstable juvenile-type diabetic. The value of phenformin was formerly limited by the high incidence of gastrointestinal side effects, but the recent introduction of a capsule seems to have solved this problem. Few patients experience nausea or vomiting after taking capsules of phenformin.

PRACTICAL RULES FOR THE USE OF INSULIN

The purpose of the rest of this article will be to refresh the reader's memory with a series of practical and pragmatic rules concerning the use of insulin. The puzzles with insulin are to know what preparation and how much to use. One can stabilize nearly any diabetic with nearly any preparation of insulin, but choosing the most convenient and effective insulin depends upon knowing the properties and times of action of the available preparations.

The insulins can be divided into three groups. The short-acting insulins—crystalline zinc or regular, and semi-lente (Figure 2)—are most active at about four hours and continue to act for about 12 hours. The intermediate insulins—NPH, globin, lente, and a two-to-one mixture of regular and protamine zinc (Figure 3)—are most active at about eight hours and continue to act for over

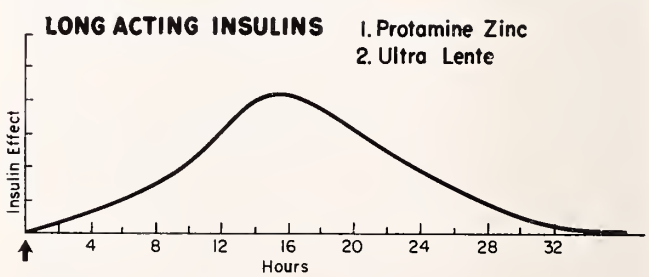

Figure 4.

24 hours. The long-acting preparations—protamine zinc and ultra-lente (Figure 4)—are most active at about 16 hours and continue to act for 32 to 36 hours.

In order to understand my explanation of our practical rules, you need to know how we keep our records. Table 1 is a sample of the diabetic charts used at the University Hospitals. The first column shows the date. The next four columns show the results of the urine tests. For regulation we use Clinitest tablets and not Tes-tape, for Clinitest is quantitatively more reliable when used by patients. The urine is collected in four periods. In theory, these periods are delineated by the clock, but in practice the first period often consists of that urine collected between bedtime and breakfast; the second period that collected between breakfast and lunch; the third, lunch to supper; and the fourth, supper to bedtime. The next column records the insulin dosage. The numbers in the "Insulin" column mean that the patient received 10 units of regular insulin and 20 units of NPH insulin (which may be given in the same syringe) before breakfast, no insulin at lunchtime, and 6 units of NPH insulin before supper. In the last column we record blood sugar. We rarely or never test fasting blood sugar. We nearly always check regulation with mid-morning or mid-afternoon blood sugars, for our objective is to control the hyperglycemia which follows the ingestion of food. You will appreciate that regular insulin, with a four-hour peak, influences the blood sugar and the amount of glycosuria between breakfast and lunch, and that morning NPH insulin with an eight-hour peak controls glycosuria between lunch and supper and between supper and bedtime. Evening NPH insulin influences that urine passed between bedtime and breakfast.

Table 2 portrays our first rules. A single morning injection of NPH insulin controls the majority of diabetics. In office practice, I use 10 units of NPH as a starting dose. In patients in the hospital, we start with 15 units. We do not change the injection of NPH each day. Although NPH is an intermediate-acting insulin, it continues to have activity for more than 24 hours, and thus one has to wait for at least 48 hours before increasing the dose. The patient whose chart is reproduced in Table 1 failed to respond to 15 units of NPH given before breakfast. We increased the dose to 20 units before breakfast, with good control. We do not get morning and afternoon blood sugar estimations until we think we have achieved good control, for we think it is both unnecessary and expensive to get frequent blood sugar analyses if we know the patient is diabetic, has a normal renal threshold and is excreting much sugar in the urine.

Table 3 portrays the chart of a diabetic who did not respond to such small doses of NPH. We increased the NPH insulin every other day, rather than every day. At the lower dosage levels in adult-type diabetes, we increase the insulin by five units daily. At higher doses, we make greater additions, increasing from 15 to 20, from 20 to 25, from 25 to 30, but from 30 to 40.

Table 4 illustrates another pragmatic rule. We have found that it is usually pointless to exceed 40 units of any one kind of insulin at any one time. The patient whose chart is reproduced was not controlled by 40 units of NPH before breakfast. We had a choice of using the same insulin at a different time or of adding a different kind of insulin at the same time. In this patient we added evening NPH insulin to the 40 units of morning NPH insulin. Control was established with NPH insulin given before breakfast and before supper. We have found NPH insulin so satisfactory that we tend to choose it in preference to lente or protamine zinc insulin.

TABLE 2

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
1	4	4	4	4		
2	4	3	2	4	NPH 15-0-0	
3	3	2	2	3	NPH 15-0-0	
4	2	2	1	1	NPH 20-0-0	
5	1	0	0	1	NPH 20-0-0	
6	1	2	0	0	NPH 20-0-0	128 106
7	1	1	1	0	NPH 20-0-0	
8	0	1	0	1	NPH 20-0-0	

A single morning dose of NPH insulin controls the majority of diabetics. In office practice I use 10 units of NPH as a starting dose. In the hospital, we start with 15 units.

TABLE 3

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
1	4	4	4	4	NPH 15-0-0	
2	4	4	4	4	NPH 15-0-0	
3	3	4	4	4	NPH 20-0-0	
4	4	4	4	4	NPH 20-0-0	
5	3	4	3	4	NPH 25-0-0	
6	3	4	4	3	NPH 25-0-0	
7	4	3	2	4	NPH 30-0-0	
8	4	4	3	3	NPH 30-0-0	
9	4	2	1	3	NPH 40-0-0	
10	2	2	1	0	NPH 40-0-0	
11	0	1	0	1	NPH 40-0-0	100 134
12	0	0	1	0	NPH 40-0-0	

This is the chart of a diabetic who did not respond to small doses of insulin. At the lower dosage levels, in adult-type diabetes, we increase the dosage by five units daily. At higher levels, our increments are greater.

Table 5 portrays a more difficult problem in regulation. This patient was not controlled with morning and evening NPH insulin. He showed a pattern of glycosuria between breakfast and lunch. Morning NPH influences the specimens of urine passed between lunch and bedtime; evening NPH influences the urine passed between bedtime and breakfast. We added an appropriate insulin and used a short-acting insulin (regular insulin) to cover the glycosuria between breakfast and lunchtime.

Table 6 illustrates another problem in control. This patient was receiving 20 units of regular and 40 units of NPH insulin each morning before breakfast. The tests showed invariable nocturnal glycosuria. Such a pattern of glycosuria does not respond to an increase in the dose of morning regular or morning NPH insulin. We added evening NPH insulin, therefore, gradually increasing the dose, and achieved satisfactory control. Once again, we used the appropriate insulin to treat the particular pattern of hyperglycemia and glycosuria.

Table 7 portrays another way of attacking a similar problem of nocturnal hyperglycemia. Instead of adding evening NPH insulin, we added a long-acting insulin, ultralente, before breakfast. Ultralente insulin acts maximally about 16 hours after injection, and, given before breakfast, prevents nocturnal hyperglycemia. Some patients prefer such a regimen as that shown in Table 7, for it permits them to have their injections at one time of day.

The use of combined insulin often produces puzzles when patients have insulin reactions. Figure 5 shows the times of action of insulins given in combination. Morning regular insulin, given before breakfast, tends to produce an insulin reaction at about 11:00 or 11:30 in the morning. Morning NPH insulin tends to produce an insulin reaction between 3:00 and 4:30 in the afternoon. Evening NPH insulin, given before supper, tends to produce an insulin reaction before breakfast the next morning.

TABLE 4

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
12	4	4	4	4	NPH 40-0-0	
13	4	4	4	4	NPH 40-0-0	
14	4	4	3	3	NPH 40-0-5	
15	3	4	3	4	NPH 40-0-5	
16	3	3	2	4	NPH 40-0-10	
17	3	2	3	4	NPH 40-0-10	
18	4	2	1	4	NPH 40-0-10	
19	4	1	1	2	NPH 40-0-15	
20	2	1	0	1	NPH 40-0-15	
21	1	1	0	1	NPH 40-0-15	142 116

This chart shows that although it is usually pointless to exceed 40 units of any one kind of insulin at any one time, additional amounts of the same type at different times may prove successful.

TABLE 5

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
15	2	4	2	1	NPH 40-0-20	
16	2	4	0	1	NPH 40-0-20	
17	1	4	1	0	NPH 40-0-20	
18	0	4	0	1	NPH 40-0-20 Reg. 5-0-0	
19	0	1	0	1	NPH 40-0-20 Reg. 10-0-0	
20	1	0	1	0	NPH 40-0-20 Reg. 10-0-0	108 134
21	0	1	0	1	NPH 40-0-20 Reg. 10-0-0	

This patient illustrates a more difficult problem in regulation. He showed a pattern of glycosuria between breakfast and lunch. We added regular insulin to correct this difficulty.

TABLE 6

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
20	4	1	0	4	Reg. 20-0-0 NPH 40-0-0	
21	4	0	1	4	Reg. 20-0-0 NPH 40-0-0	
22	4	1	0	3	Reg. 20-0-0 NPH 40-0-5	
23	4	1	0	3	Reg. 20-0-0 NPH 40-0-5	
24	4	0	1	4	Reg. 20-0-0 NPH 40-0-5	
25	3	0	1	3	Reg. 20-0-0 NPH 40-0-10	
26	2	1	0	3	Reg. 20-0-0 NPH 40-0-10	
27	3	0	1	3	Reg. 20-0-0 NPH 40-0-10	
28	2	0	1	1	Reg. 20-0-0 NPH 40-0-15	
29	1	0	1	0	Reg. 20-0-0 NPH 40-0-15	82 116

Nocturnal glycosuria, such as this patient showed, does not respond to an increase in morning regular or NPH insulin. We added evening NPH insulin, gradually increasing the dose.

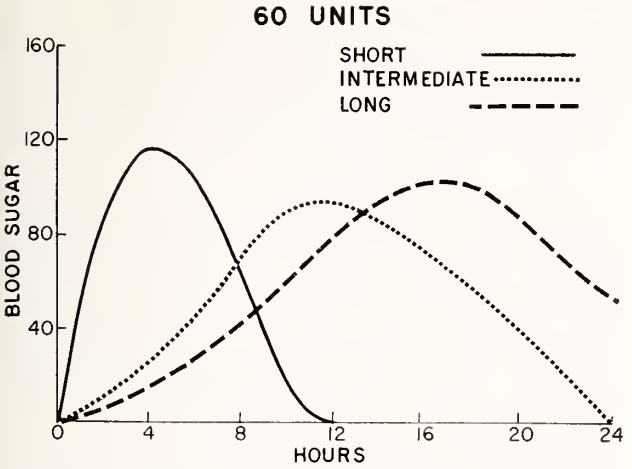

Figure 5. Shows the times of action of insulins given in combination. Morning regular insulin, given before breakfast, tends to produce an insulin reaction at about 11:00 or 11:30 a.m. Morning NPH insulin tends to produce an insulin reaction between 3:00 and 4:00 p.m. Evening NPH insulin, given before supper, tends to produce an insulin reaction before breakfast the next morning.

TABLE 7

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
20	4	1	0	3	Reg. 20-0-0 NPH 40-0-0	
21	3	0	1	4	Reg. 20-0-0 NPH 40-0-0	
22	3	1	0	3	Reg. 20-0-0 NPH 40-0-0 Ultra 5-0-0	
23	2	0	1	4	Reg. 20-0-0 NPH 40-0-0 Ultra 5-0-0	
24	4	1	0	3	Reg. 20-0-0 NPH 40-0-0 Ultra 5-0-0	
25	4	1	1	3	Reg. 20-0-0 NPH 40-0-0 Ultra 5-0-0	
26	3	1	0	2	Reg. 20-0-0 NPH 40-0-0 Ultra 10-0-0	
27	1	1	0	1	Reg. 20-0-0 NPH 40-0-0 Ultra 10-0-0	105 100
28	1	0	1	2	Reg. 20-0-0 NPH 40-0-0 Ultra 10-0-0	

This table shows another way of combatting nocturnal glycosuria—adding ultralente insulin before breakfast. Some patients prefer this alternative because they need take insulin only once a day.

Table 8 illustrates another rule. Juvenile diabetics are sensitive to insulin. The juvenile-type diabetic whose chart is reproduced showed hyperglycemia and glycosuria in the morning between breakfast and lunchtime. Morning regular insulin should prevent this hyperglycemia and glycosuria. In an adult-type diabetic we might have increased the dosage of morning regular insulin by five units. Since adult-type diabetes is more common, I think we tend to forget the insulin sensitivity of the

TABLE 8

JUVENILE-TYPE DIABETIC

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
	0	4	1	0	NPH 50-0-35 Reg. 14-0-0	
2	1	4	1	1	NPH 50-0-35 Reg. 14-0-0	
3	1	1	0	1	NPH 50-0-35 Reg. 16-0-0	
4	1	0	1	0	NPH 50-0-35 Reg. 16-0-0	104 96

Juvenile diabetics are sensitive to insulin. This patient showed glycosuria and hyperglycemia between breakfast and lunchtime. Morning regular insulin should remedy this situation.

TABLE 9

Day	Glycosuria 12 mn. 6 a.m.	6 a.m. Noon	Noon 6 p.m.	6 p.m. 12 mn.	Insulin	Blood Sugar
1	0	4	1	0	Reg. 14-0-0 NPH 50-0-35	270 116
2	0	4	0	1	Reg. 14-0-0 NPH 50-0-35	
3	0	0	3	0	Reg. 16-0-0 NPH 50-0-35	Insulin Shock —11 a.m. (24 mg.)
4	0	0	2	0	Reg. 16-0-0 NPH 50-0-35	Insulin Shock —11 a.m. (30 mg.)
5	0	4	0	1	Reg. 14-0-0 NPH 50-0-35	
6	0	4	1	0	Reg. 14-0-0 NPH 50-0-35	
7	0	0	1	0	Reg. 16-0-0 NPH 50-0-35	Snack 10:30 a.m.
8	1	1	0	0	Reg. 16-0-0 NPH 50-0-35	128 94

This patient showed morning hyperglycemia and glycosuria, but when we increased the dose of regular insulin before breakfast, he had a mid-morning insulin reaction. A snack at the appropriate time solved this difficulty.

juvenile-type diabetic. We usually increase or decrease the dosage of insulin in a juvenile-type diabetic by only two units at a time.

Table 9 shows a common practical problem in the juvenile-type diabetic. There is morning hyperglycemia and glycosuria. We increased the dose of regular insulin by only two units, increasing from 14 before breakfast to 16 before breakfast, but the patient was so sensitive to insulin that he had an insulin reaction in the middle of the morning, a reaction confirmed by a blood sugar of 24 mg. per cent. When we reduced the morning dose of insulin by only two units, however, hyperglycemia and glycosuria reappeared. A similar situation may occur at any other time of day and may involve any other type of insulin in the juvenile-type diabetic. The effective remedy for this difficulty is to continue with the larger dose of insulin but to give the patient a snack at the appropriate time. We gave this patient a snack at 10:30 in the morning to prevent the morning hypoglycemic episodes but continued with the larger dose of regular insulin. We often see this problem. It is usually solved by adding a snack at the appropriate time to balance the insulin which is causing the hypoglycemia.

SUMMARY

I have described some of the recent advances in the use of the oral hypoglycemic agents, and have tried to illustrate some of our own practical and pragmatic rules for the use of insulin in patients with diabetes. There are, of course, exceptions to these rules, but the theme is that the proper use of insulin demands a clear understanding of the various preparations.

REFERENCES

1. Singer, D. L., Stewart, C., and Hurwitz, D.: Chlorpropamide in patients on high insulin dosage. New England J. Med., **265**:823-826, (Oct. 26) 1961.
2. Unger, R. H., Madison, L. L., and Carter, N. W.: Tolbutamide-phenformin in ketoacidosis-resistant patients. J.A.M.A., **174**:2132-2136, (Dec. 24) 1960.
3. Beaser, S. B.: Oral combinations of drugs in diabetes mellitus therapy. J.A.M.A., **174**:2137-2141, (Dec. 24) 1960.

Nutrition of the Patient With Rheumatoid Arthritis

ROBERT E. HODGES, M.D.
Iowa City

MOST PHYSICIANS share a feeling of inadequacy in managing patients with rheumatoid arthritis. Available forms of medical therapy leave a lot to be desired, and physiotherapy, though highly beneficial, is both time-consuming and expensive. Once the patient has developed severe crippling deformities, rehabilitation is extremely difficult. Treatment must be directed at the patient in the early stages of the arthritic process if one is to avoid these miserable results of the terminal stage.

It is axiomatic that any disease without a specific therapy is a disease with countless remedies. This fact has done much to make physicians skeptical of new forms of treatment for rheumatoid arthritis. This is sound logic, and yet it does tend to make us therapeutic nihilists.

Successful treatment of any patient with rheumatoid arthritis demands strict attention to a number of small details. The role of nutrition in the management of arthritis is one of these details—one which has been long neglected. Far too many patients with this disease have been given insufficient dietary advice or none at all. That which they do get generally consists of a terse statement such as "Eat plenty of good food" or "Get a well-balanced diet." This form of advice means little to the patient, and he goes home to eat the same fare as he did before consulting his physician.

Similarly, patients who are hospitalized usually are given the regular hospital diet. By giving this sort of order, we often feel that we have fulfilled our obligation to provide them proper nourishment. It is perfectly true that the regular diet in a modern hospital *is* well-balanced, but unfortunately the patient often fails to eat it. The physician who visits the bedside of his arthritic patients at mealtime, and chats with them a while, may be surprised to see how they pick at their food and how often they leave their meat uneaten.

MANY ARTHRITIC PATIENTS ARE MALNOURISHED

The reasons for discussing the role of nutrition in the management of rheumatoid arthritics are obvious. Most of these patients are malnourished to some degree. A great many of them have been given poor or misleading advice by their friends, relatives and acquaintances. In addition, we have

Dr. Hodges, an associate professor of internal medicine at the S.U.I. College of Medicine, made this presentation during the Refresher Course for General Practitioners, at Iowa City, in February, 1962.

observed that optimal nutrition favors recovery or improvement.

The signs of malnutrition in the arthritic patient are abundant (Table 1). One of the most common and most convincing of them is loss of weight. Often this is an early sign, and the degree of weight loss is roughly proportionate to the severity of the arthritic process. Although not all of the factors involved in this loss of weight are understood, a number of them are readily apparent. The patient experiences general malaise and anorexia, both of which are aggravated by a sense of depression or discouragement over his disability. Medications such as salicylates contribute materially to his anorexia, especially when given in large doses. Financial factors also are important, since the arthritic patient may be forced to discontinue his employment and hence can't afford customary foods. Protein is most apt to suffer, because it is the most expensive.

Pain is another important factor, for pain and hunger seldom occur simultaneously. The housewife who finds herself unable to prepare her usual meal or who can't sit comfortably at the table is less likely than is a normal woman to eat a well-balanced diet. Involvement of the hands is extremely important. If the patient can't use a knife and fork properly, or if the housewife can't even use a can opener, or peel potatoes, or lift a pan of hot water from the stove, the diet is apt to be affected materially.

Frequently, arthritic patients have involvement of the temporo-mandibular joint. This makes chewing quite difficult, and again, meat is the food that is neglected in consequence. Furthermore, many patients with arthritis have dental caries or have had numerous dental extractions. A few decades ago it was customary to advise complete dental extraction in the hope of eradicating some hidden focus of infection. Loss of teeth further lessens the likelihood that the patient will eat properly.

In severe, active rheumatoid arthritis, fever of a low grade is quite common. This increases the metabolic demand, but at the same time the fever itself results in greater malaise and anorexia. Thus the reasons why an arthritic patient does not eat well (pain, finances, temporo-mandibular disease, loss of teeth, anorexia) are obvious, and it is the intake of protein which is affected more than is the consumption of any other single type of food.

The reduction in protein consumption becomes manifest in a number of ways. The most apparent of these is loss of muscular mass. In the earliest stages of the disease, this may not be readily seen, but in far-advanced cases the muscles of the extremities become atrophic, and the actual quantity of muscular mass may be decreased markedly. This contributes to generalized weakness and fatigability of the patient, and severely hampers his efforts at rehabilitation. Laboratory tests offer additional evidence of protein malnutrition. Generally, the concentration of total protein in the serum is reduced only slightly, but the albumin/globulin ratio may be reversed. Furthermore, by electrophoresis, we can observe the changes in the globulin fractions—particularly elevations in the alpha-2-globulin, gamma globulin and fibrinogen.[1] Increases in these fractions result in the familiar elevation of the erythrocyte sedimentation rate. Studies of nitrogen balance have demonstrated alarming and persistent degrees of nitrogen loss.[2, 3]

Another form of malnutrition in the arthritic patient involves mineral metabolism. We have observed, as have many others, that a negative calcium balance occurs in any patient who is immobilized. This loss of calcium, in general, parallels the degree of physical inactivity. It doesn't matter what the cause of the immobility is. It may be a fracture, a stroke, rheumatoid arthritis or something else. When immobilization is prolonged for periods of months and years, it favors the development of osteoporosis and nephrolithiasis. The adrenocortical steroids which are used so commonly in the treatment of arthritic symptoms may accentuate the loss of both protein and calcium.[4]

A great many patients with rheumatoid arthritis are anemic. Their anemia is generally microcytic and hypochromic. Although numerous studies have been performed, the nature of this anemia has not been clearly defined.[5, 6] Some patients have a relative hydremia, but those who are most severely malnourished and immobilized have a reduction in the total circulating blood volume. Most arthritic patients also have an accelerated rate of erythrocyte destruction, an actual hemolytic process.[7, 8] In these severe cases this may be accompanied by leukopenia and splenomegaly, the so-called Felty's syndrome. Examination of the bone marrow may show nothing specific, but there usually is a relative lethargy of erythroid hemato-

TABLE 1

EVIDENCE OF MALNUTRITION IN RHEUMATOID ARTHRITIS

1. Weight Loss
2. Loss of Protein
   a. Decreased muscle mass
   b. Reversed A/G ratio
   c. Negative nitrogen balance
3. Loss of Calcium
   a. Osteoporosis
   b. Dental caries
   c. Negative calcium balance
4. Anemia
   Multiple Factors
   a. Iron deficiency
   b. Hematopoietic inertia
   c. Shortened erythrocyte survival
5. Carbohydrate Intolerance
   Abnormal glucose tolerance curve
   (often corrected by high carbohydrate diet)

poiesis. Measurements of the total iron-binding capacity and of the total concentration of iron in the blood often show defects of both.[5, 6]

If we administer iron orally, we usually note little or no effect. If we give injections of iron intravenously, we can often partially correct the anemia, but we can seldom do the whole job. Administration of vitamin B-12, folic acid or any of the other hematinics is without avail.[9, 10]

Still another metabolic defect in the arthritic patient is an intolerance to carbohydrates. About 10 years ago, we were quite surprised to find that every one of a group of 18 rheumatoid arthritis patients had some abnormality of the glucose-tolerance curve.[3] A few of them appeared to be frankly diabetic, but others had lesser derangements. A brief review of previous publications showed us that this phenomenon had been described earlier.[11] The carbohydrate intolerance of rheumatoid arthritis does not lead to an increased incidence of diabetes mellitus. Rather it is an example of the relative starvation which will cause changes in the glucose-tolerance curve.

MISTAKEN CONCEPTS ABOUT NUTRITION IN ARTHRITIS

So far, this discussion has concerned the foods that an arthritic patient fails to eat, and the peculiar metabolic disorders that accompany his disease. There is another aspect which is equally important, namely, the many mistaken concepts about nutrition in rheumatoid arthritis. These are peculiarly common among the laity. Psychiatrists tell us that food represents security, health and accomplishment. There is little wonder, then, that a patient with a chronic disease for which we have relatively little to offer will turn to dietary fads in the hope of accomplishing a cure or at least some relief for himself.

Consider for a moment the questions which a recently afflicted arthritic may ask you. Often she asks, "What do you think of such-and-such a diet?" and she goes on to tell you, "Mrs. Jones' husband, down the street, had arthritis and ate such-and-such a diet, and the arthritis just disappeared." The physician who scolds his patient or who ignores such questions has actually lost an excellent opportunity for impressing upon her the value of proper nutrition, and the fallacy of fads or special diets. For this reason it behooves all of us to have some familiarity with these common fallacies.

I have chosen a few of those that have come to my attention, but there are many others (Table 2). Remember that the lay person is seeking a cause-and-effect relationship between the food which he eats and the illness that he has. By becoming familiar with some of these ideas, the physician will enable himself, intelligently and sympathetically, to discuss the problems involved and also to explain why there isn't any certain diet that will serve as a panacea.

It is extremely unfortunate that many of these irrational ideas or food fads have taken on commercial significance. Over the years, arthritic patients have been exploited by unscrupulous peddlers of expensive foods and elaborate vitamin-and-mineral preparations. The Food and Drug Administration has done well to limit the activities of those people, but for each one that it puts out of business, another one appears.

A few years ago, we were approached by the medical director of a firm that sold capsules and tablets alleged to contain natural vitamins and natural minerals. This firm had been selling its products from door to door, presenting them as adjuncts in the treatment of rheumatoid arthritis. The firm was convinced that the Food and Drug Administration was discriminating against its business by seeking to ban its products from the market. The medical director asked us to conduct a double-blindfold test which would, he hoped, demonstrate the benefits of his company's products. We were very skeptical about the company's claims, but since we were interested in studying certain biochemical changes in arthritic patients, we agreed to perform the double-blindfold study for a period of one year. We were to administer either the vitamin-mineral preparation or an identical-appearing placebo, and none of us were to know the identity of either.

We kept accurate records of the patients—their sense of well-being, the amount of work they could do and the amount of pain they had. We measured their range of joint motion with a goniometer, and we performed laboratory determinations of their blood counts, hemoglobin concentrations, sedimentation rates, plasma proteins and electrophoretic patterns. During the year, it was quite gratifying to find that a number of the patients did improve, and for a time we wondered whether some of them might not actually have had some degree of vitamin deficiency. At the end of the year, however, when we had broken the code, we found that the

TABLE 2

NUTRITIONAL FALLACIES

Alleged Cause	Useless Treatment
1. Auto-intoxication due to fermentation of food in bowel	Acidophilous milk Laxative diets
2. "System" too acid	Alkaline-ash diet Mineral waters Antacids
3. Overhydration	Restriction of salt and fluids
4. Abnormal glucose tolerance	Carbohydrate restriction
5. Dietary deficiency (unknown factors) 6. Toxic effects (insecticides)	"Natural foods"
7. Vitamin deficiency	Vitamin preparations
8. "Allergic" factors	"Immune" milk

group that had been given the placebos had done slightly better than the group which had received the vitamin-mineral preparation.

This demonstrates an important fact: The arthritic patient appreciates the attention given him by his physician. He is willing to work harder and to eat better and to follow his regimen of therapy much more closely if he receives close attention.

To the best of my knowledge, there is only one directly injurious form of self-medication which the rheumatoid arthritic patient is likely to take. That is a chronic overdose of vitamin D. This was popular a few decades ago, but it caused severe hypercalcemia and, in some cases, irreversible kidney damage.[12] Most fallacious diets and other fads are not harmful in themselves. The chief damage they do lies in the fact that the patient spends money on useless items, rather than on proper, regular medical care and a well-balanced diet. A wise and sympathetic physician can explain, and usually will convince his patients, of the folly of all of these fads.

HOW CAN WE PERSUADE OUR PATIENTS TO EAT?

Optimal nutrition is a cornerstone in the management of any patient with rheumatoid arthritis (Table 3). Diet in itself will not cure any patient, but an adequate diet will provide the proper number of calories to restore lost weight or to remove excess weight. It will furnish an abundance of protein and calcium to lessen the losses that are occurring, and it will contain adequate amounts of all of the essential vitamins and minerals. This is preferable to the use of supplemental vitamins because they, in themselves, may cause slight anorexia, and because they constitute an unnecessary expense.

TABLE 3

A PROPER DIET CAN BENEFIT THE PATIENT

1. Arrests weight loss
2. Lessens or reverses nitrogen loss
3. Lessens calcium loss
4. Seldom corrects anemia
5. Improves morale and sense of well-being

TABLE 4

RECOMMENDED DIET

Calories	Adequate to achieve normal weight
Protein	At least 1.5 Gm/Kg normal body wt.
Carbohydrates, Fats	Normal distribution

Special Features of Diet

1. Must be appetizing and varied
2. Multiple feedings often desirable
3. Should provide an abundance of
   a. Essential vitamins
   b. Essential minerals; especially calcium and iron
4. Must be in a form which patients can eat (problems of cutting meat, chewing, etc.)
5. Should be modified to suit patients' likes and finances

Prescribing an adequate diet is quite easy, but getting the patient to eat it is difficult. We have experimented with a well-balanced formula, feeding it to a few severely debilitated arthritic patients who wouldn't eat. These patients can and will gain weight, they will reverse their negative nitrogen balances, and they will lessen their negative calcium balances, but obviously it is impractical to feed most patients this way. The point is that if food is eaten, it will reverse or lessen these abnormalities.

How can we get these patients to eat? A resourceful dietitian often provides the answer. She can talk with the patient, find out his personal preferences, his financial limitations and the physical disabilities which interfere with his eating. She can then offer him foods which not only are ones that meet his requirements but are ones that he will most readily accept. If acceptance is poor, a week or two of tube-feeding, allowing the patient "to eat around the tube," may assist greatly in restoring his sense of well-being and his appetite. Frequently, several small meals per day are necessary (Table 4).

Meat and other solid foods must be prepared in such ways as to allow the patient to use table implements and to chew his food adequately. The American Rheumatism Association publishes a bulletin describing the use of modified kitchen and table implements that enable the housewife to prepare meals more easily, and enable the patient to use his table utensils more effectively.[13]

By employing these simple measures, the practicing physician can achieve nutritional improvement in almost every arthritic patient, provided that he adopts a friendly, cheerful attitude and uses a good measure of common sense. Once this improvement has been accomplished, the patient is usually more amenable to other forms of treatment, principally as a result of a sense of greater well-being and an actual improvement in his strength.

CONCLUSION

In summary, a patient with rheumatoid arthritis needs a well-balanced diet which provides adequate calories, an abundance of protein and ample quantities of calcium and iron. Special attention must be paid to the task of making the diet attractive, easy to eat and adequate in all of the essential nutrients. Not the least important aspect of this management is the willingness of the physician to listen to his patient's recitals of fads and notions about dietary treatment, and to explain that there is no special food which will cure arthritis and that

there are no certain foods which must be avoided in order to achieve the best possible therapeutic result.

REFERENCES

1. Routh, J. I. and Paul, W. D.: Electrophoretic analyses of plasma and serum proteins in rheumatoid arthritis. Arch. Phys. Med., **31**:511-517, (Aug.) 1950.
2. Paul, W. D., Hodges, R. E., Bean, W. B., Routh, J. I. and Daum, K.: Effects of nitrogen mustard therapy in patients with rheumatoid arthritis, Arch. Phys. Med., **35**:371-380, (June) 1954.
3. Clark, W. S., Watkins, A. L., Tonning, H. O. and Bauer, W.: Effects of resistance exercises on nitrogen, phosphorus and calcium metabolism of patients with rheumatoid arthritis. J. Clin. Invest., **33**:505-509, (Apr.) 1954.
4. Robinson, W. D.: Nutrition and joint disease. J.A.M.A., **166**:253-257, (Jan. 18) 1958.
5. Ebaugh, F. G., Jr., Peterson, R. E., Rodnan, G. P. and Bunim, J. J.: Anemia of arthritis. Bull. Rheum. Dis., **5**:89-90, (May) 1955.
6. Ebaugh, F. G., Jr., Peterson, R. E., Rodnan, G. P. and Bunim J. J.: Anemia of rheumatoid arthritis. M. Clin. North-America, **39**:489-498, (March) 1955.
7. Jeffrey, M. R.: Anemia of rheumatoid arthritis. Ann. of Rheum. Dis., **11**:162-166, (June) 1952.
8. Richmond, J., Alexander, W. R., Potter, J. L. and Duthie, J. J.: Nature of anemia in rheumatoid arthritis. V. Red cell survival measured by radioactive chromium. Ann. Rheum. Dis., **20**:133-137, (June) 1961.
9. Nilsson, F.: Anemia problems in rheumatoid arthritis. Acta med. Scandinav., **130**:1-193, (supp. 210) 1948.
10. Sinclair, R. J. G. and Duthie, J. J. R.: Intravenous iron in treatment of hypochromic anemia associated with rheumatoid arthritis. Brit. Med. J., **2**:1257-1258, (Dec. 2) 1950.
11. Flynn, J. E. and Irish, O. J.: Blood sugar level following intravenous glucose in rheumatoid arthritis. Science, **104**:344-346, (Oct. 11) 1946.
12. Reed, C. I., Dillman, L. M., Thacker, E. A. and Klein, R. I.: Calcification of tissues by excessive doses of irradiated ergosterol. J. Nutrition, **6**:371-381, (July) 1933.
13. Arthritis Self-Help Devices. New York University Medical Center, 400 East 34th Street, New York 16, New York.

Patent Ductus Arteriosus In Young Infants

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PATENT DUCTUS ARTERIOSUS in older children is usually manifested by easily recognizable physical signs. In infants, the classical findings are frequently absent, and babies may consequently die with an easily-curable disease. The admission of two such patients at the Raymond Blank Memorial Hospital for Children, in Des Moines, within a one-month period has demonstrated the problems encountered.

CASE 1

J. S. L. was admitted at two months of age for cardiac evaluation. The child was the fourth baby of healthy parents. All siblings were living and well. The baby's birth weight had been 7 lbs., 8 oz. Postnatal progress had seemed satisfactory, except for the fact that weight gain had been nonexistent, although the baby had taken 20 to 25 oz. of milk each day. Cyanosis had not been observed. No infections had occurred. Respirations had been more rapid than normal at times. At six weeks of age, for the first time, the attending physician had found a heart murmur.

Physical examination at the time of admission on December 28, 1960, showed the infant's weight to be 7 lbs., 6 oz., and length to be 20¼ in. The respirations were 32 and the pulse rate 132 per minute, and the temperature was 98.8°F. There was a thrill over the precordium. The pulmonary second sound was partially obscured by a grade four systolic murmur heard over the whole precordium, but loudest in the fourth interspace to the left of the sternum. The femoral pulses were bounding.

X-ray showed an enlarged heart, with increased pulmonary vascularity and increased pulmonary artery segments. The electrocardiogram showed an axis of 40°, with left ventricular hypertrophy and probably right hypertrophy. The hemoglobin was

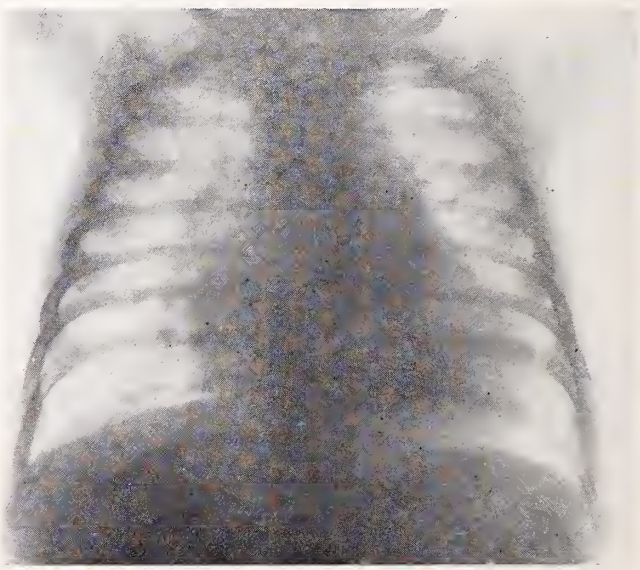

Figure 1. Chest film shows enlarged heart and increased pulmonary vascular markings in patient M. L. D.

From Raymond Blank Memorial Hospital for Children.

8.7 Gm. On the day after admission, a retrograde aortogram was done, and it was followed by a right heart catheterization. The aortogram clearly demonstrated a patent ductus arteriosus. No intracardiac shunt was demonstrated by the catheterization.

On January 4, 1961, six days after admission, in a one-hour procedure, a large patent ductus was ligated. The infant's postoperative course was uneventful, and the child was discharged 10 days after surgery. A follow-up two months after surgery revealed good progress, with a three-pound weight gain in that period of time.

CASE 2

M. L. D. was admitted on January 2, 1961, for vomiting and constipation. She was the first child of a 20-year-old mother. Her birth weight had been 8 lbs., and she apparently had been normal until two months of age, when she began to have diarrhea and vomiting which lasted for a week. Thereafter, she apparently had been well until one week before her admission, when vomiting recurred and became persistent. No stools had been noted during the two days prior to admission. The baby had become febrile in the 24 hours preceding admission.

On admission, at the age of three months, the child weighed 10 lbs., 6 oz. The respirations were 30 and the heart rate 180 per minute. The temperature was 103.6°F. The child looked acutely ill. An acute otitis media on the right probably accounted for her fever. The precordium bulged slightly, and the apex impulse was diffuse. A grade three systolic murmur was heard over the whole precordial area. The liver was one inch below the right costal margin. The femoral pulses were strong.

The white blood cell count was 9,600/cu. mm., with 62 per cent lymphocytes. The hematocrit was 31 volumes per cent, with a hemoglobin of 9.9 Gm. A urinalysis showed 40 to 50 white cells, 15 to 20 red cells, and 2 + albumin. A chest x-ray showed generalized cardiac enlargement, with an increase in the pulmonary vasculature which was thought to be due to pulmonary congestion. A repeat film three days later showed the same findings, except that the lung fields then appeared to have increased vascular markings, rather than congestion. The electrocardiogram showed a severe left ventricular hypertrophy, with definite evidence of right ventricular hypertrophy. The P waves were peaked, suggesting right atrial enlargement.

The child was treated with digitalis and antibiotics, and showed considerable improvement in the first three days. An aortogram was scheduled, but the night before that procedure was to take place, the baby suddenly became much worse, with rales bilaterally and increasing dyspnea. A repeat chest film showed a pneumonitis and an interlobar effusion on the right side. She became rapidly worse, and expired 12 days after admission.

At postmortem, a large patent ductus was found. Endocardial fibroelastosis of moderate degree was found in all chambers. Extensive areas of pneumonic infiltration were present in both lungs. There was slight muscular hypertrophy of the smaller pulmonary arteries.

DISCUSSION

Although the diagnosis of patent ductus arteriosus should be considered in any infant with a systolic murmur, certain features in the cases cited should have been recognized as pointing to the correct diagnosis. The most striking feature in

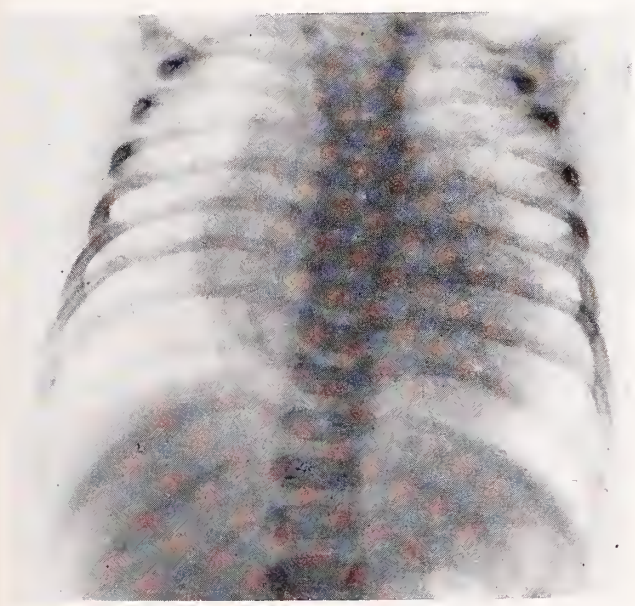

Figure 2. Chest film shows enlarged heart and increased pulmonary vascular markings in patient J. S. L.

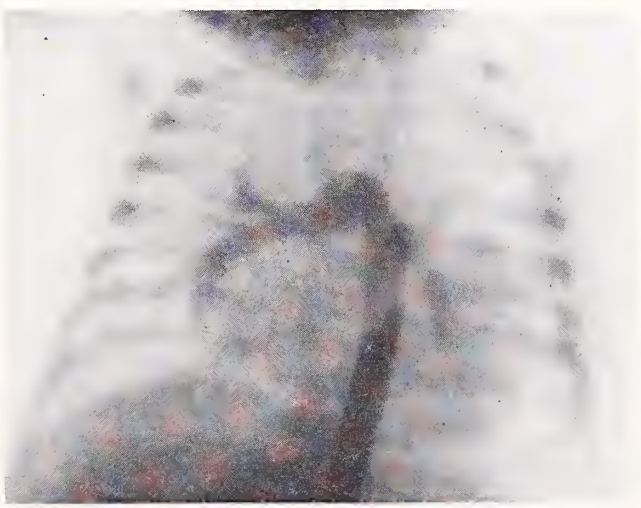

Figure 3. This film of the cine-angiogram of patient J. S. L. shows injection of contrast medium into the abdominal aorta and the filling of pulmonary vessels through the patent ductus arteriosus.

each case was the presence of strong or bounding femoral pulses in an obviously sick child. Femoral pulses are not easily palpated in healthy infants. In infants with congestive failure due to intracardiac abnormalities, femoral pulses are usually so weak as to suggest coarctation. The presence of a bounding peripheral pulse is strong evidence pointing toward the diagnosis of patent ductus arteriosus.

The characteristic murmur of patent ductus arteriosus does not usually appear until late in the first year of life. Instead, the non-specific precordial systolic murmur is present, and it can easily be mistaken for that of a ventricular septal defect. Localization of murmurs in infancy is unreliable.

The electrocardiogram in older children with patent ductus arteriosus is normal or shows left ventricular hypertrophy. In infants with growth failure due to patent ductus, the electrocardiogram may show right hypertrophy as well as left.

The x-ray findings are also non-specific. The heart is enlarged, and the pulmonary vascular markings are increased. A large ascending aorta points to the diagnosis of patent ductus arteriosus, but this is difficult to identify in infants with large hearts.

In older children, the diagnosis can usually be established with sufficient accuracy so that surgery can be recommended without further study. In infants, the likelihood of other anomalies, plus the uncertainty of the diagnosis, can make further confirmation essential. Right ventricular hypertrophy is a contraindication to surgery, although it may be found in infants with only a patent ductus arteriosus.

If the diagnosis is suspected, proof is obtained most easily by aortography. Injection of contrast medium into the aorta reveals opacification of the pulmonary arteries. The ductus itself may not be seen.

In our first case, the diagnosis of patent ductus was easily established, but a heart catheterization was done to rule out intracardiac defects. Ligation of the ductus would have been carried out even if a ventricular septal defect had been found, but if the baby had been found to have a tetralogy of Fallot, it would not have been performed.

The second baby was critically ill, but it was hoped that vigorous therapy would produce enough improvement to allow the performance of the necessary procedures with a minimum of risk. The delay proved unwise. The endocardial fibroelastosis was probably secondary to the patent ductus arteriosus. In spite of the endocardial fibroelastosis, it was felt that ligation of the patent ductus would have been life-saving.

SUMMARY

Two cases of patent ductus arteriosus occurring in young infants have been reported.

Diagnostic criteria necessary for the establishment of the correct diagnosis have been pointed out.

Corrective surgery is feasible, and should be carried out promptly, once the diagnosis has been established.

Detecting Hearing Impairment in Children

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AT LEAST ONE out of every 20 school children has some degree of hearing impairment. Although many of these deficits are mild, some are quite severe, and a few are total. In each school room there may be from one to three children with some type of hearing difficulty. It goes without saying that a child's education can be planned more satisfactorily if these hearing problems are detected and if remedial procedures are initiated early. Far too often, hearing impairments in children are not discovered until they have been present some time, and consequently the child has been deprived of proper therapy.

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There are two types of hearing loss, broadly speaking—those which are congenital and those which have been acquired after birth. It is particularly important to detect congenital hearing losses as early as possible, so that proper speech and hearing habilitation can be accomplished. Children who have never heard sound cannot be expected to develop speech naturally.[1] They can usually develop speech, however, if they are properly trained. The earlier habilitation is initiated, the more successful it is likely to be.

Congenital hearing losses may be partial or complete. There are some of them that are caused by incomplete development of the external auditory canal, middle-ear structures or the auditory

nerve itself. These may be classified as conductive, sensori-neural and mixed.

Babies with normal hearing and without neurologic involvement respond to sound with a "startle reflex." This reaction, called "the Moro response," can be elicited by means of any loud stimulus. It can be evoked by a "clacker," in which a heavy spring slaps two boards together,[2] producing a particularly effective, broad-frequency sound. Although the infant's main response, during the first four months of life, is the startle reflex, during the remainder of the first year the response is more likely to be some movements of the head or eyes toward the sound. This obviously is a rather gross test, but it does help immediately to screen those children who can be suspected of having either a profound hearing loss or another neurologic defect.

As the child develops, little attention may be paid to his hearing during his routine visits to the physician, unless the mother suggests that he is failing to hear. A mother's mentioning that the child does not appear to hear should never be taken lightly, and should not be dismissed without a very thorough examination of his hearing. Items in the child's history that would suggest a hearing defect should be carefully elicited. A child whose babbling develops normally at first, only to cease at about 18 months of age, should be very strongly suspected of being profoundly deaf. It is important for the physician to find out whether or not a child comes when called, whether he listens to the radio or the television at normal or only at loud levels, whether he is attracted by an airplane sound, whether he is ever startled by the ringing of the telephone or the door bell, etc. His mother will be aware of any abnormalities of this sort, or can be alerted to look for them.

GROUPS ESPECIALLY SUSCEPTIBLE TO HEARING IMPAIRMENT

When can the physician suspect a hearing loss, even though the parents are unaware of it? There are certain groups which are very much more likely to have hearing losses than are children picked at random from the general population. Youngsters belonging to these groups should be watched very carefully for any signs of hearing impairment or speech defect. The susceptible individuals are (1) members of families with a history of deafness, (2) children whose mothers had rubella or a virus infection during the first trimester of pregnancy, (3) premature children and (4) children who sustained birth injury, neonatal jaundice or anoxia at the time of birth. Several additional groups will bear watching. They include children who have had mumps, meningitis or measles with or without encephalitis, at an early age; those who have had courses of ototoxic antibiotics such as dihydrostreptomycin, etc.; children with metabolic disorders such as cretinism; and children with recurrent middle-ear infections. Dihydrostreptomycin has caused profound hearing loss when as little as 2.5 Gm. of it has been administered, and the hearing loss can occur as long as six months after the injection of the drug. For this reason and because in the past dihydrostreptomycin was used in combination with penicillin, the relationship between the drug injection and the hearing loss was unsuspected. Special care should be used in watching children belonging to the groups that have just been listed, so as to find the signs of hearing impairment before the condition becomes so obvious that the mothers report it.

Congenital profound deafness is far easier to detect than is a milder hearing loss or a mild-to-moderate conductive loss resulting from a middle-ear effusion. The latter of these conditions can be particularly hard to detect since children's responses to their parents are often inconsistent and can reflect any of several extraneous factors. When a child seems not to hear, it may be that he has a hearing deficiency, or it may be that he is inattentive, mentally incompetent or actually rebellious.

One of the commonest causes of hearing loss in children is secretory otitis media, of which there are two types—serous and mucoid. The underlying factor is eustachian-tube malfunction, which is usually caused by obstructive lymphoid tissue. Although the main mass of adenoid tissue may be removed, a very small remainder in the proximity of the tube can cause obstruction at times by swelling, whether of infectious, allergic or metabolic origin. Fluid in the middle ear is not always easy to detect. At times an amber discoloration of the tympanic membrane, with a fluid level or bubbles behind it, makes diagnosis quite easy. More often, the amber color is not definite, and if the middle ear is full of fluid, there will be no air-fluid level to see. One of the most valuable instruments for detecting fluid is a pneumatic otoscope, with which the mobility of the typmanic membrane can be determined. Fluid markedly decreases this mobility. The most important factor in the treatment of secretory otitis media is the restoration of the function of the eustachian tube. This depends upon proper surgical, allergic and metabolic therapy, as indicated. The serous type of effusion will usually respond well to this therapy, but the mucoid type often presents a more difficult problem.

The child with a profound hearing loss should be discovered relatively early in life by the general practitioner or pediatrician who is following him from the newborn nursery through his early years. Although profoundly deaf, the child will do the babbling that is normal for the newborn, but the babbling will not develop into organized, recognizable words.[3] Rather, at about 18 months of age, the babbling may cease altogether. This is

a positive sign of profound deafness. At that age it is normal for early speech development to take place, and it is extremely important that the hearing loss be detected so that auditory stimulation can be provided. Between the ages of 2 and 2½ years, the profoundly deaf child does not speak if he has not had sound stimulation. His ability to communicate with his playmates is thus impeded, and the result may be either some aggressive tendencies or an extreme timidity.[4] Certainly by this age, if the patient has not developed speech, a very careful evaluation of his hearing status is mandatory.

THE ROLE OF HEARING TESTS IN THE SCHOOLS

What, then, of the many patients with relatively mild hearing losses who are able to develop language but yet do not have normal hearing? For the most part these are the five per cent of school children who have hearing losses, many of which have heretofore been undetected. One of the most important programs in the detection of hearing loss is the school hearing program. A suggested arrangement of this sort has been outlined by the American Academy of Ophthalmology and Otolaryngology's Committee on the Conservation of Hearing. Ideally, each school-age child should be tested each year. An absolute minimum, however, is a test every third year.[5] It would, of course, be useless to test more children each year than the follow-up program could accommodate, but it is suggested that every three years the kindergarten, third, sixth and ninth grade pupils should be completely checked. In addition, annual tests and evaluations should be made of those children with ear problems, those with borderline test results the previous year, those with speech defects, and others who have been referred by a teacher or by the school nurse.

There are several ways of testing in the schools, but the most satisfactory method appears to be individual screening at a level of 15 or 20 decibels, depending upon the background noise level. This, of course, is not a final check, but those who show impairment on the screening test can then have complete audiograms and otologic evaluations. With complete assessment, the degree and type of problem can be determined, and medical intervention should be initiated, if indicated. Speech training, lip reading, preferential seating and all other rehabilitory adjustments should be undertaken, in their proper order, if the hearing problem is not reversible.

In order to be effective, the program of tests must be inclusive. There must be a team made up of an audiometrist, a school nurse and a physician. In the past, there have been too many hearing tests without adequate medical follow-up. It is most important that those children who fail the school screening program should be examined by a physician. All too often, youngsters who do poorly in school are thought to be mentally retarded. It is important to check the hearing of these children as a preliminary part of investigating the etiologies of their problems. State and local hearing conservation committees have been organized to help establish and guide these school programs. In addition, they disseminate information to the public and to physicians regarding the early detection and treatment of hearing loss. The individual members of these committees frequently present papers on these topics at county medical meetings and at Parent-Teacher Association meetings.

TECHNICS FOR DETECTING DEAFNESS IN PRE-SCHOOL CHILDREN

Although, for the most part, the testing of hearing in school-age children is not difficult and can be accomplished through the use of a clinical audiometer, testing children suspected of hearing loss at earlier ages presents a real challenge to the diagnostician. As we have said, the best test for an infant is provided by a sound stimulus that elicits the Moro reflex. During the first six months, although sound stimulation out of the child's line of vision may be tried by means of drums, tom toms, horns, whistles, bells, etc., a quiet voice appears to be among the most effective as far as eliciting a response is concerned. At an age between seven and 11 months, a baby begins to localize the sounds out of his line of vision, and appears to respond better to sound such as bells, rather than to the beating of a drum. The meaning of a sound appears to determine the likelihood of response. Thus the click of a door handle, even though quite faint, is more likely to cause a response than is a louder sound such as that of a pitch-pipe or a drum, which may have no meaning. Some experienced otologists can assess hearing levels grossly through the use of calibrated noisemakers with various frequency spectra.

During the second year of life, the child should comprehend simple sentences and produce two-or-three-word phrases. The degree of alertness is, of course, correlated with motor development and mental and social maturity. It is quite difficult to test any child with multiple problems. By the age of 2½ years, a child can frequently be conditioned to perform a simple act such as pointing to a teddy bear when he hears a sound. Testing is most easily carried out using live voice.

By the age of 3 to 3½ years, a conventional audiogram can usually be obtained, using play audiometry in which the child completes part of a simple jigsaw puzzle each time he hears an audible tone, or drops a marble into a box to the same stimulus. Any means may be employed to make the test pleasurable and thus engage the child's attention long enough for an audiogram of at least the speech frequencies. It is possible to test children with the psycho-galvanic skin response. This is a test in which the child is conditioned to a mild electric shock after a sound stimulus. Subsequent sound stimuli without shocks, when heard, then cause sweating of the

skin, which can be detected with appropriate instruments. Another instrument that can be used in objective audiometry is the electroencephalograph. It will detect the responses to sound stimuli. A fairly accurate estimate of the amount and type of hearing loss can usually be obtained by such means in individual patients, even if they are young, mentally retarded or hostile, or have neurologic involvements.

Establishing the amount and type of hearing loss may occasionally take the combined efforts of a pediatrician, a psychologist, an audiologist, a speech pathologist, a neurologist, a psychiatrist and an otologist, but after that information has been secured, a comprehensive program of rehabilitation can be offered. The child with a correctable conductive defect such as adenoid blockage of the eustacian tube orifices should, of course, receive appropriate surgical therapy, and allergic or metabolic therapy if indicated. For the child with sensori-neural hearing loss, a rehabilitation program has to be geared to the amount of loss as well as to his age. It should again be emphasized that the natural age for learning sound discrimination is the first two years of life. For this reason, early detection and appropriate habilitative measures are extremely important.

HABILITATIVE MEASURES

It seems almost paradoxical that children who are not speaking because they are profoundly deaf need sound stimulation. It is exactly what they do need, however, and the earlier they receive it, the better. Parent education along this line is very important. Although the children who are profoundly deaf cannot be expected to learn to speak normally, they yet may learn to speak, and their parents should be so informed.

Sound stimuli are best provided through the use of amplification. Although this does not provide normal sound stimulation in the profoundly deaf child, it does provide audible sound and makes the child aware that sound has vibrations. Some profoundly deaf children will develop speech reading at a relatively early age, but if this is used with a total habilitation program, the results will be much better. It has been said that a profoundly deaf child may learn to produce all sounds. It is very difficult, however, to teach him to understand phonetic differences as well as to reproduce them. Understanding language and meanings of words is, of course, extremely important, and actually should precede the production of speech itself. Even partially-deaf children acquire mechanical reading ability, but frequently fall behind in reading comprehension. The profoundly deaf child then needs a combined program of amplification, language building, speech reading, auditory training and speech therapy. This total habilitation is of such an individual nature that it is necessarily carried out in small classes and can best be handled in special schools. However, if hearing loss is detected very early, and if the maximum habilitative efforts are exerted, some children will develop to the point where in spite of profound hearing loss they can attend partially or fully integrated schools with normal hearing children.

Youngsters with mild to moderate degrees of hearing loss likewise should be individually evaluated. It is necessary to determine whether amplification is indicated, what role speech reading should play in their overall therapy program, the amount of speech therapy necessary and the educational adjustment needed. Depending on the age at which the hearing loss is discovered, and the amount and quality of therapy that has been given, these children may be able to attend partially or completely integrated public schools for their entire education.

Early detection of hearing impairment in children is essential if the end results are to be satisfactory. The early investigation should be based on a high index of suspicion, particularly as regards children in the vulnerable groups, a very respectful reception for the mother's statement that the child does not hear well, and alertness for the red flag of delayed or abnormal speech development. The practitioner who is actively looking for the signs and symptoms of hearing impairment and who will see to it that suspected children are properly investigated is the keystone of the early detection program.

SUMMARY

Approximately 5 per cent of American school children have hearing impairments that range from a mild loss to profound deafness. Since the basis for speech is established during the first two years of life, it is imperative that children with hearing losses be detected at an early enough age to benefit from this learning period. It behooves us all to be particularly alert to the signs and symptoms of impaired hearing, and to obtain a complete evaluation when necessary to help establish the diagnosis. It is equally important that we be aware of local and national educational, rehabilitative and surgical facilities, so that the parents of children with hearing defects can be properly informed, encouraged and guided. With early detection and sound medical and educational guidance, these children can take their places in modern society.

REFERENCES

1. Ashworth, M.: Language problem of partially deaf child. Speech, **21**:24-29, (Apr.) 1957.

2. Hardy, J. B., Dougherty. A., and Hardy, W. G.: Hearing responses and audiologic screening in infants. J. Pediat., **55**:382-390, (Sept.) 1959.

3. Ewing, I. R., and Ewing, A. W. G.: Ascertainment of deafness in infancy and early childhood. J. Laryng. & Ophthalmol., **59**:309-333, (Sept.) 1944.

4. Boies, L. R., Canfield, N., Carhart, R., and Keaster, J.: Hearing loss in pre-school children: guide for diagnosis and treatment. Tr. Am. Acad. Ophth., **56**:835-846, (Sept.-Oct.) 1952.

5. Newhart, H., and Reger, S.: Manual for a School Hearing Conservation Program. American Academy of Ophthalmology and Otolaryngology Committee on the Conservation of Hearing, 1956.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 20-YEAR-OLD MAN entered the University Hospitals in 1938 because of recurrent episodes of painful and swollen joints for four years. The attacks had involved the wrists, fingers, knees and ankles, and were associated with generalized malaise and loss of appetite. Physical examination was normal except for the presence of a grade I systolic murmur at the apex of the heart. That illness was diagnosed as acute rheumatic fever. The treatment consisted of bed rest and salicylates.

He returned in July, 1953, because of exertional dyspnea and easy fatigability for six months. For one year he had had a chronic cough, mainly in the mornings, productive of a small amount of yellowish sputum. For two years his appetite had been poor, and he had lost weight from 165 to 150 lbs. He worked as a carpenter, but in the preceding six months his activities had been restricted because of his illness. He was taking digitoxin, 0.2 mg. daily. He was a well developed, slender white man who appeared chronically ill. His blood pressure was 110/80 mm. Hg, his pulse rate was 72 per minute, and the rhythm was irregular. He had right ventricular overaccessibility, a loud mitral first sound, an occasionally split pulmonic second sound, and a grade III low-pitched diastolic murmur at the apex of the heart. An opening snap of the mitral valve was not heard. The hemoglobin was 14.1 Gm., the red blood cell count was 4.85 million/cu. mm., and the white blood cell count was 6,800/cu. mm. The sedimentation rate was 3 mm./hr. An electrocardiogram showed auricular fibrillation. Fluoroscopic examination of the heart showed a diminutive aortic knob, prominence of the pulmonary artery segment, enlargement of the left auricle, enlargement of the right ventricle, and no left ventricular hypertrophy. The clinical diagnosis was mitral stenosis.

On August 4, 1953, a mitral valvuloplasty was performed. The left auricle was large, but contained no clots. The mitral valve opening was estimated at 2-4 mm. in diameter. The valve leaflets were scarred, but were still pliable. The operator's index finger was inserted through the opening into the left ventricle. No obvious fracture could be felt, but after two attempts at opening the valve, the valve orifice was estimated at 12 x 6 mm. in size, permitting the operator's entire index finger to be passed easily into the left ventricle. Palpation for regurgitant jet revealed no evidence of one. The right auricular pressure before the operation had been 35 mm. Hg, and following the procedure it was 20 mm. Hg. The patient had an uneventful postoperative course, and in two months returned to work.

He returned to the hospital in January, 1960. During the summer of 1959, he had begun to notice progressive shortness of breath. Ten days before admission, he had been hospitalized in his home town because of severe dyspnea and ankle edema. The blood pressure was 110/70 mm. Hg, the pulse rate was 70 per minute, and the rhythm was irregular. Many fine crepitant rales were heard in both lung fields. The left border of cardiac dullness was at the anterior axillary line. A grade II decrescendo diastolic murmur was heard at the apex, the mitral first sound was louder than the mitral second sound, and the liver was 6 cm. below the right costal margin. The hemoglobin was 12.1 Gm., the white blood cell count was 6,100/cu. mm., and the urinalysis was normal. The sedimentation rate was 33 mm./hr. Cardiac fluoroscopy revealed an extremely prominent pulmonary artery segment, a diminutive aorta, left auricular enlargement, right ventricular enlargement, right auricular enlargement, and enlargement of the left ventricle. An electrocardiogram showed auricular fibrillation, digitalis effect, and presumptive evidence of right ventricular hypertrophy. The clinical diagnosis was recurrent mitral stenosis.

A second mitral valvuloplasty was attempted on February 5, 1960. Because of the scarring present from the first operation, the procedure was technically difficult. The left auricle was opened and was found to be filled with a large intraauricular clot. On palpation, the mitral valve was regurgitant, extremely calcific, completely destroyed and quite immobile. The anterior and

posterior commissures were opened as much as possible. The surgeon thought he had dislodged some clots from the left auricle. Postoperatively, the patient had a left hemiplegia. For that reason, it was necessary to make arrangements to have him admitted to a nursing home for physiotherapy at the time of his discharge on March 11, 1960.

The patient's final admission was on February 7, 1961. He had been feeling fairly well until January, 1961, when he had begun to notice gradually increasing shortness of breath, usually following exertion. In the two weeks before admission, he had had several episodes of paroxysmal nocturnal dyspnea. He had been taking Digoxin, 0.5 mg. daily, and occasional diuretics. He was a markedly dyspneic, acutely ill man, who weighed 147 lbs. Moist rales were heard at the bases of the lungs. The blood pressure was 95/65 mm. Hg, the ventricular rate was 76/min., auricular fibrillation was present, and the left border of cardiac dullness was in the mid-axillary line. There was a grade III diastolic and also a grade III systolic murmur, both heard at the apex. The liver was 12 cm. below the costal margin. There was 2+ pitting edema of the legs. A Dupuytren's contracture was present in the left hand. Pain and touch sensations were diminished over the left face and on the left arm. A urinalysis was negative. The hemoglobin was 10.9 Gm., and the white blood cell count was 6,300/cu. mm. The chest x-ray showed congestive heart failure, with bilateral pleural effusion and probable pulmonary edema. An electrocardiogram showed digitalis effect, auricular fibrillation and right ventricular hypertrophy.

He was treated with an 800 mg. sodium diet, diuretics, digtailis and bed rest. He failed to respond to therapy, and died on February 9, 1961.

SUMMARY OF CLINICAL DISCUSSION

Dr. George N. Bedell, Internal Medicine: The patient whom we are discussing today was first seen at the University Hospitals in 1938, when he was 20 years old. At that time, he had an illness which was thought to be acute rheumatic fever. He returned to the hospital in July, 1953, with what was apparently mitral stenosis. He had a mitral valvuloplasty. Thereafter, he was better for several years, but he came to the hospital again in January, 1960, with recurrent mitral stenosis, and had a second mitral valvuloplasty. A stroke followed, but then he was better again for a period of about one year. Then he came back into the hospital, severely ill, and died.

Mr. Jacobson will present the case for the students.

Mr. James Jacobson, junior ward clerk: The case presented today is that of a man who was chronically and progressively ill from the age of 16 years until he died at the age of 43. We believe his history to be characteristic of rheumatic heart disease, and we are relieved to find recorded in the protocol that the onset was an acute one, for often this diagnosis is made solely on the basis of a mitral murmur. The initial symptoms of polyarthritis, malaise and anorexia, when associated with a heart murmur, are typical of acute rheumatic fever, and when considered along with the rest of this man's history simply give support for his final diagnosis.

Following the initial acute episode, the patient lived an apparently normal life for 14 years, until 1955 when he began to exhibit symptoms of mild congestive heart failure, probably secondary to mitral stenosis. His chronic cough, exertional dyspnea, easy fatigability, poor appetite and loss of weight can all be explained on that basis.

The physical findings at that time were characteristic of rheumatic heart disease, and included a grade III low-pitched, diastolic murmur at the apex; auricular fibrillation, which commonly occurs secondary to mitral stenosis, with dilation of the left atrium; right ventricular overaccessibility and a split second sound, both characteristic of one pulmonary hypertension associated with mitral stenosis. Cardiac fluoroscopy supported the clinical findings, and a diagnosis of mitral stenosis was made at that time.

Mitral valvuloplasty was performed, and following an uneventful postoperative course, the patient returned to work in four months. Again, he was apparently symptom-free, but this time only for a period of six years.

In 1959, at the age of 41, he developed symptoms of congestive heart failure, with the clinical picture of shortness of breath, ankle edema, crepitant rales in both lungs, cardiomegaly and hepatomegaly. Auscultation, cardiac fluoroscopy and electrocardiography substantiated the diagnosis of recurrent mitral stenosis, and a second mitral valvuloplasty was performed. At the time of operation, mitral insufficiency was demonstrated, although it had not been noted clinically, and this is a possible explanation for the left ventricular enlargement noted at the cardiac fluoroscopy. As stated, the mitral stenosis was corrected, but postoperatively the patient developed a left hemiplegia, probably due to clots dislodged from the left atrium at operation. After that operation, the symptoms of congestive heart failure were relieved for almost a year.

On the patient's final admission, February 7, 1961, he was acutely ill, markedly dyspneic and in severe congestive heart failure from which he did not recover. The findings of grade III diastolic and systolic murmurs at the apex of the heart, and a lowered systolic blood pressure, indicate to us that the mitral valve was probably fixed in an open position. We believe that this incompetence of the mitral valve increased the severity of the patient's symptoms and led to his demise. The immediate cause of death, we believe was pulmonary congestion.

Dr. Bedell: Thank you, Mr. Jacobson. The next discussant will be Dr. January.

Dr. L. E. January, Internal Medicine: I usually approach the discussion of a CPC with suspicion bordering on paranoia, but somehow this case seems different. I have "looked under the rug and into all the dark corners," but can find nothing other than a straightforward case of rheumatic mitral stenosis, with documentation of the relentless progress of the disease.

Taking the protocol at face value, we can accept as facts that this man had his initial acute rheumatic fever at the age of 16, and had one or more recurrences during the next four years. It is suggested to us that he may have escaped chronic valvular disease with the earliest rheumatic episodes because he had only a minor systolic murmur when he was seen here in 1938, during an acute rheumatic recurrence. I assume that he did in fact have mitral valvulitis at that time. Often, the first murmur is a minor systolic murmur, sometimes so slight as to have questionable significance, particularly if there is fever or tachycardia, and the true nature is apparent only after some months of observation. If the murmur is due to rheumatic valvulitis and a slowly evolving mitral stenosis, the systolic murmur later gives way to the characteristic diastolic murmur.

These are the inferences which can be drawn from the patient's early history. Whether or not they are correct is of more than academic concern. There is a suspicion today that if a patient completely escapes valvulitis with his first attack of rheumatic fever, he may not develop it with subsequent recurrences. If this could be established as fact, it might very well indicate a less urgent need in such patients drug prophylaxis against recurrences of rheumatic fever later on. The inferences to be drawn from this case are quite the opposite, but even so, the hint needs further follow-up in a series of cases.

We know nothing more about this patient until he returned, 15 years later, with a story of a declining cardiac functional capacity for two years, rapidly progressive for the previous six months. By that time, he had passed into the stage of advanced mitral stenosis, even to the acquisition of established atrial fibrillation. In passing, I cannot help commenting on the auscultatory record of whoever saw him at the time. Possibly I did. I have no way of knowing at the moment. Even so, if the second heart sound was split, it wasn't "occasionally" so, unless that phrase was intended to mean that it was split during inspiration and unsplit during expiration. If such were the case, it should have been so stated. Also, the examiner took the trouble to say that no opening snap of the mitral valve could be heard. No doubt that was a truthful evaluation, but it was probably in error in view of the "pure" mitral stenosis that was described at operation. I feel quite sure that an opening snap of the mitral valve practically always is present in a patient with significant "pure" mitral stenosis. Think of it, listen for it, tune in, and it's there.

Dr. Ehrenhaft will comment more fully on the operation, but from the description in the record it would seem to me that the valvular commissures were not fractured, that mobility of the leaflets was not reestablished, and that instead, the valve was only dilated. It may have been technically impossible to do otherwise, but that was unfortunate, for the valve is described as having been fibrous, and no mention is made of contraction and matting-together of the chordae tendineae. We are left with the impression that reestablishment of valvular mobility might have been possible if adequate commissural separation had been achieved. It has been possible to say, almost since the beginning of this type of surgery, that an excellent long-term result depends upon the adequacy of the valvuloplasty.

Undoubtedly, the patient was improved by whatever was done. Patients with mitral stenosis nearly always are improved for a time, even by incomplete correction of the mitral obstruction. The record suggests that this man did well for nearly six years before he returned with an even larger heart and again in cardiac failure. A less loud mitral diastolic murmur was reported—whatever that means. It may mean that he had a more severe mitral stenosis than before, but probably it indicates only that a different physician examined him. The return of cardiac failure, the larger heart and the appearance of electrocardiographic evidence of right ventricular hypertrophy lead inescapably to the conclusion that restenosis of the mitral valve had occurred. Reoperation—again by the closed technic—was done. This time the valve was different, and an immobile, calcific, distorted valve was described, testifying to the classic course of progressive mitral stenosis.

I cannot help noting that the surgeon also described a regurgitant jet, although no systolic murmur is listed as having been heard beforehand. We won't settle that inconsistency today. Dr. Ehrenhaft and I haven't resolved our own conflicts in that area. I have an attitudinal set that makes me believe his finger is no more sensitive than my ears, and that if a regurgitant jet is of sufficient force to be felt, it will not be altogether silent. Undoubtedly there are a number of subtle reasons for this occasional inconsistency, but they are not important to this discussion, and I'll drop the matter.

The left atrium, this time, was found to be filled with a thrombus, and it seems apparent that the brain was embolized. Evidently, nothing much could be done to restore valvular function, nor in my opinion will anything ever be done with such a valve, short of total replacement. Even so, ventricular muscle is tough, particularly when the major problem is old rheumatic mitral stenosis. The left ventricular reserve is such that it pumps

out whatever volume of blood is delivered to it, and the patient is able to keep going, sometimes for remarkably long periods. This is a fact to be reckoned with whenever we speculate on the short-term effects of a valvuloplasty upon longevity. This man went another year before succumbing to cardiac failure. It is of interest that he died at 43 years of age, which is about the average age at death for all patients with mitral stenosis who have lived to age 20, irrespective of whether or not they are operated upon.

The protocol indicates that the duration of this patient's rheumatic mitral stenosis from onset to his death was 27 years, during which time he had one or more recurrences of rheumatic fever, and later developed chronic atrial fibrillation, several episodes of cardiac failure, progressive valvular scarring with a slow deposition of calcium, thrombosis within the left atrium and systemic embolization, before finally dying from heart failure eight years after the first episode. Of the usual manifestations, he skipped only bacterial endocarditis.

Dr. Bedell: Before calling upon the pathologist, perhaps I may ask the radiologist to point out the signs of mitral stenosis as he saw them in this patient.

Dr. Carl L. Gillies, Radiology: The first film was obtained on the patient's second admission, in July, 1953, and shows cardiac enlargement, the heart having the configuration of mitral stenosis. The second film was taken after his first operation. Then, the heart was a little larger than the first time. The third film was taken after the patient's second operation, and its shows very little change in the size or configuration of the heart. The fourth film was obtained in February, 1961, shortly before the patient's death. The heart and diaphragm at that time were obscured by pulmonary edema and bilateral pleural effusions.

Dr. January: Can you see the double density of the left atrium in these films?

Dr. Gillies: Yes, it can be seen on the first film.

Dr. Bedell: Dr. Ehrenhaft, would you like to make some comments before we call upon the pathologist?

Dr. J. L. Ehrenhaft, Surgery: I believe that this patient was not helped by surgery. What we tried to achieve by both operative procedures was obviously not achieved. At the time of the first operation, on August 4, 1953, a small mitral opening was encountered. The mitral leaflets were scarred but still pliable. Two attempts at opening the valve by finger fracture failed, and the result was what one might term a dilatation of the stenotic ring. At the time of the second mitral valvuloplasty, on February 5, 1960, exploration of the mitral valve revealed considerable change from what had been found in August, 1953. The mitral leaflets were extremely calcific, completely destroyed and immobile, and there was evidence of mitral regurgitation. The anterior and posterior commissures were separated somewhat at that time. The patient developed a left hemiplegia postoperatively, undoubtedly because of some intraauricular clots which must have been thrown into the general circulation during the manipulation.

This patient really does not represent true restenosis of the mitral valve. Actually, his difficulty was a progession of valvular disease after an inadequate first valvuloplasty.

Any center where large numbers of patients have been treated for mitral stenosis is now faced with some patients in whom restenosis of the mitral valves has taken place. Some have only increasing signs of restenosis, and others have progressive—often severe—symptoms. Not all patients will need reoperation immediately. One must realize that these patients had extensive hemodynamic and anatomic valvular changes at the time of their initial valvuloplasties. Chronic rheumatic valvular disease is an ever-changing and always progressive condition involving the valves, chordae tendineae, papillary muscles and myocardium. It progresses from inflammation to scarring to calcification. The hemodynamic changes depend on the local anatomic configuration of the structures involved. No matter what is done to the valvular structures surgically, normality is never restored. All procedures must be considered only palliative. They have no more effect than to turn the clock back a few years.

How long is a patient relieved of symptoms? It depends upon the adequacy of the initial operation, upon local anatomic peculiarities, and upon the general progression of the disease process and reinfection. The less effective the initial valvuloplasty, the more rapid the recurrence of symptoms. The method of reoperation is not likely to change the progression of the pathologic processes in most instances.

It is now about 12 years, in most everyone's experience, since the first patients underwent initial valvuloplasty. The literature quotes a recurrence rate of about 8 per cent. I believe that figure is too low, and in our experience it is more likely to be 15 per cent. I am sure that as time passes, the percentage will increase. The technic employed at reoperation depends upon the description of the valve at the time of the first valvuloplasty, and upon how much work was possible at that time. It is of great importance that the operative description of the initial procedure should be accurate and not tinted by enthusiasm about how much relief was given or about how little insufficiency was produced at that time. We mustn't forget that the situation thereafter almost always deteriorates, that it rarely remains stationary, and that it never improves.

Dr. Bedell: Thank you, Dr. Ehrenhaft.

The clinical diagnosis in this case was rheumatic heart disease with mitral stenosis. At the end, it was thought that the patient had both mitral stenosis and regurgitation. The clinical diagnosis

of the final episode was cardiac failure, and it was thought that the patient died of cardiac failure.

Dr. Longnecker will describe the pathologic findings.

Dr. D. S. Longnecker, Pathology: At autopsy the patient appeared well developed and well nourished, thus making us think that his disease process had been an acute terminal one, rather than a prolonged illness such as might produce cachexia. There was just a trace of peripheral edema, and there was no ascites. The lungs were extremely heavy, weighing 1,700 Gm. each, and there was evidence of marked acute and chronic congestion. There was also bilateral pleural effusion, with 100 ml. on the right and 300 ml. on the left. These features suggest that heart failure was predominantly left-sided.

The heart was enlarged, weighing 650 Gm., and both atria were described as enlarged, with the left markedly predominant. The pericardial sac was obliterated by fibrous adhesions. I think that those adhesions were probably the result of the operation, rather than a result of rheumatic epicarditis or pericarditis. There was mitral stenosis. Although no particular mention was made of mitral insufficiency in the autopsy protocol, I think it likely that there was insufficiency. The valve opening measured 2 to 3 mm. in width, and was 1.5 cm. in length. The leaflets were extremely fibrotic, thickened, calcified and rigid. I doubt that the valve either opened or closed very much, and stenosis was the predominant functional result. The other heart valves appeared to be completely uninvolved. A large mural thrombus was present in the left atrium, as it had been at surgery. It was organized at the endocardial surface, and was unorganized at the free surface. This large thrombus extended around the perimeter of the atrium, and had quite an irregular surface. It was estimated that this covered a total of 40 per cent of the endocardial surface in the left atrium, and an extension of the thrombus proceeded in a retrograde direction into one of the pulmonary veins. The thrombus was up to 1.5 cm. in thickness in some areas.

There were two old infarcts in the spleen, and there were multiple small infarcts in the right cerebral hemisphere, both in the parietal and occipital cortex and in the thalamus. In the parietal and occipital cortex, the small infarcts involved only the gray matter. The age of those lesions is somewhat indefinite, but their histologic appearance is perfectly compatible with about one year. Those infarcts are assumed to have resulted when a portion of the mural thrombus was dislodged, and an embolus had traveled to the brain. The presence of multiple small infarcts on one side of the brain suggests that an embolus had fragmented, and that portions of it had lodged in several different small vessels.

Incidental findings included absence of the right kidney, ureter and testicle. These anomalies were attributed to congenital aplasia of the urogenital ridge on the right. Another anomaly was a Meckel's diverticulum.

Finally, to justify Dr. January's fear—or his suspicion which, he said, amounted "almost to paranoia"—I think that we shall have to attribute the patient's death to a disease process which hasn't yet been mentioned. That was a pneumonitis which was evidenced microscopically by intra-alveolar edema fluid, red cells and neutrophils. The complete left lower lobe was involved by this process, and patches of all other lobes were also involved. The organism which was cultured was Diplococcus pneumoniae, so this represented an early stage of lobar pneumonia. Since the patient's pulmonary reserve was severely limited by the heart disease and by the resulting pulmonary congestion, he died earlier in the course of the pneumonia than he would have if he had had normal lungs.

In summary, there was severe chronic rheumatic heart disease, with mitral stenosis and a minor degree of insufficiency. This was complicated by a left atrial mural thrombus, embolization, and infarction in the spleen and brain. The cause of death was probably respiratory insufficiency resulting from pulmonary congestion and superimposed pneumonia.

Dr. Bedell: The pneumonia came as a surprise

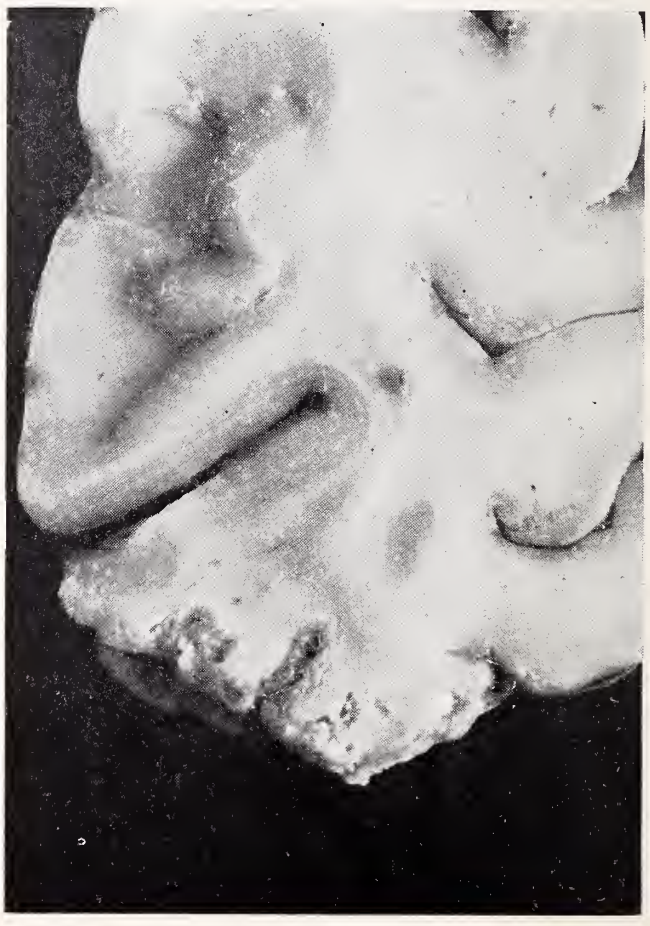


Figure 1. Cut surface of right occipital lobe of brain. The gray matter in the lateral portion of the lobe is thinned and irregular in an old area of infarction.

to the clinicians, too. This was not suspected. He had relatively little fever, for his temperature was about 100°F.

Dr. January has had a keen interest in mitral stenosis for several years now. He has followed approximately 90 patients who have had mitral valvuloplasties, and so at this time I should like to ask him to make a few remarks about this operation. He will tell you some of the things he has learned about the operation in terms of the indications for it and the complications of it.

Dr. January: Dr. Ehrenhaft has emphasized that mitral valvuloplasty is strictly palliative. It couldn't be otherwise in a progressive ailment like rheumatic heart disease. The ultimate hope is to prevent rheumatic fever, rather than to devise an operation for the already-damaged heart. This being the case, the patient must have declined in his functional capacity to at least Class II before being considered for this operation. This is true because the patient with the best result from this surgery can be no better than his asymptomatic, unoperated control. The exceptions are a few Class I patients who have embolic accidents before their cardiac functional capacities begin to decline. There are not very many of these patients. Ideally, the symptoms should be primarily related to the mechanical block of the mitral stenosis and the consequences from the rising pressure behind it, rather than from myocardial failure, if reasonably long-term good results are to be expected.

I believe the first operation for mitral stenosis was done in 1948, and there now are a number of 10-year follow-up reports on operated patients. Most of the series suffer from a minor defect, in that patients seldom are seen by the same physician on their return visits. This circumstance colors the result, because of the varying levels of experience of the examining physicians in large outpatient dispensaries. This is important because so much of the evaluation of the results of this type of surgery must be subjective. Correlation of improvement with changes in physiologic data has not been particularly instructive.

Dr. Bedell indicated that I have closely followed a series of my own private patients that now numbers 90. They have been seen by no one else on their return visits. With rare exceptions, all of them were operated upon by one surgeon, Dr. Ehrenhaft. They have been followed now from two months to 11 years, with a mean of about six years. I think their courses pretty much tell the story of the operative treatment for mitral stenosis.

Two were misdiagnosed, and in fact had predominant mitral insufficiency. Thus, only a cardiotomy was done, without a valvuloplasty. Four of the 90 have been lost to follow-up. The courses of 84 patients are known. Seven of this group without mitral insufficiency (or 8 per cent) developed a significant amount at the time of operation. Thirty-five (39 per cent) had established atrial fibrillation before operation, and 11 more have developed it since, at times varying from the immediate postoperative period to six years later. Hence, a total of 46 (51 per cent) of the whole group had atrial fibrillation. Eleven (12 per cent) had one or more systemic embolic accidents before surgery, and nine of those 11 patients had established atrial fibrillation as their heart rhythms. Five (6 per cent) embolized to the brain during the course of surgery, and three have been greatly handicapped ever since. Only one embolization has occurred after surgery, contrasted with 11 beforehand. One patient had such a severely clotted left atrium that the operation was immediately terminated. She was treated with an anticoagulant drug for two months and then operated by the "open" technic, with what promises to be an excellent result.

Perhaps the most discouraging finding to date is that 13 patients (15 per cent) have developed restenosis of the mitral valve. Of those 13 patients, six have been reoperated. Two are already dead, one from heart failure and one from staphylococcal endocarditis; two have already restenosed their valves and have a Class IV functional capacity; one is improved; and one is well. The last of these patients was operated by the "open" technic. The other seven patients with mitral-valve restenosis currently are stable in Class III.

The current status of the group of 84 patients, including those with restenosis, is as follows. Thirty-six (43 per cent) are Class I. Nineteen (22.5 per cent) are Class II. Thus 55 (65.5 per cent) of the group can be said now to have had satisfactory results. Twelve (14 per cent) are Class III and could not be considered as greatly helped. Two (1.5 per cent) are Class IV, but this is not to say that they didn't have some palliative help, both from their first and second operations. Three (4.5 per cent) are cerebrovascular embolism cripples, but they have achieved some improvement in heart function. Twelve (14 per cent) are dead. Three of those were operative deaths, one from hemorrhage, one from a torn mitral valve and one from heart failure. Nine patients have died in from five weeks to seven years after surgery, mostly from heart failure.

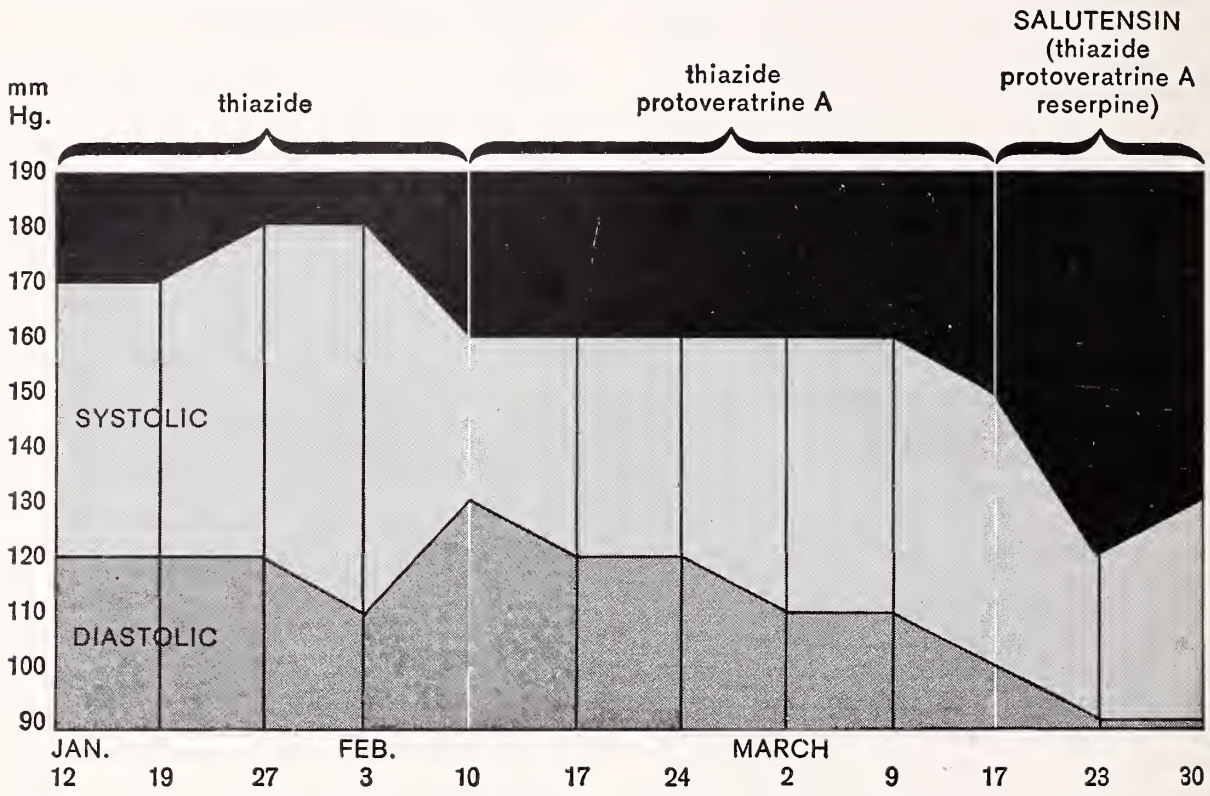
Dr. Ehrenhaft may wish to say something more about the surgery. There seems to be a question, still, as to whether the first operation should be by the "closed" technic, or whether all should be by the "open" procedure. Certainly it is a fact that the best long-term results will follow the most adequate valvuloplasty, and the one done at the time when the symptoms are due mainly to mitral valve block and not to heart failure. Probably the best results also will follow in the patient who has the least calcification in his valve. It seems reasonable that more mobility can be reestablished in the fibrous rather than in the calcific valve, and hence with less chance of progression towards restenosis.

Dr. Bedell: Are there any questions from the floor for Dr. January or Dr. Ehrenhaft?

Senior Student: Does the use of steroids change the outlook for patients with this disease?

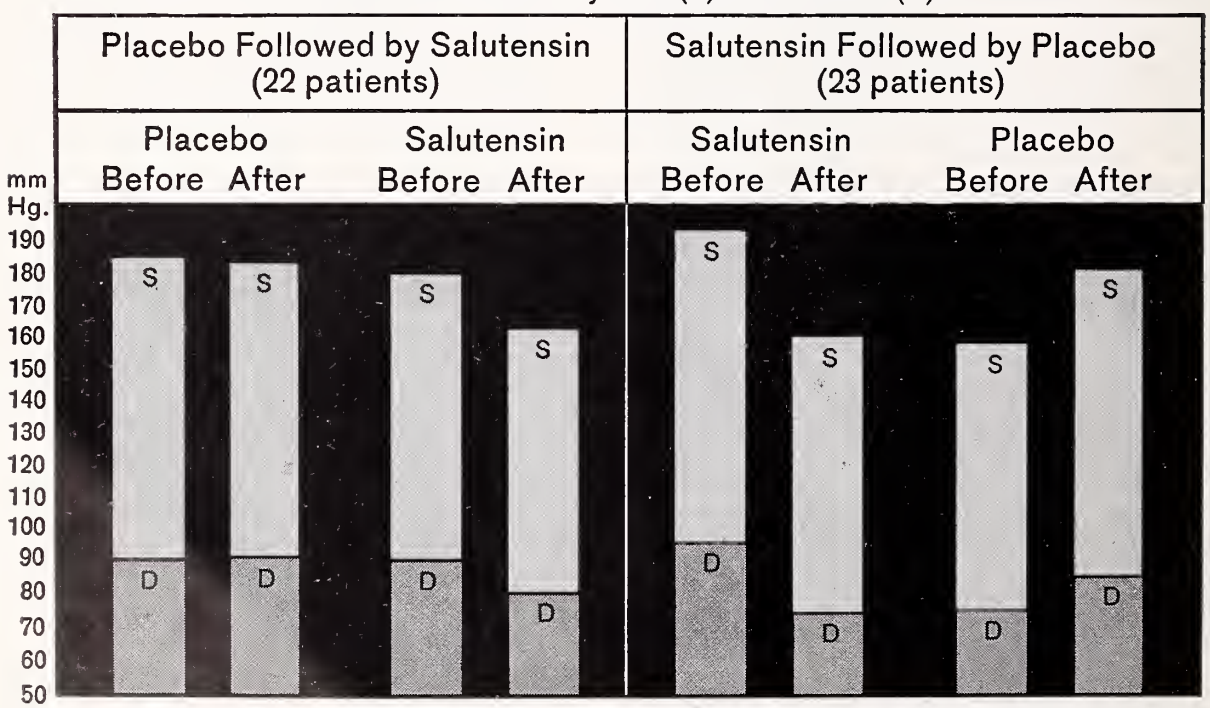
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

BRISTOL LABORATORIES/Div. of Bristol-Myers Co., Syracuse, N.Y.

blood pressure approaches normal more readily, more safely....simply with

Salutensin®

(hydroflumethiazide, reserpine, protoveratrine A—antihypertensive formulation)

Early, efficient reduction of blood pressure. Only Salutensin combines the advantages of protoveratrine A ("the most physiologic, hemodynamic reversal of hypertension"[1]) with the basic benefits of thiazide-rauwolfia therapy. The potentiating/additive effects of these agents[2-8] provide increased antihypertensive control at dosage levels which reduce the incidence and severity of unwanted effects.

Salutensin combines Saluron® (hydroflumethiazide), a more effective 'dry weight' diuretic which produces up to 60% greater excretion of sodium than does chlorothiazide[9]; reserpine, to block excessive pressor responses and relieve anxiety; and protoveratrine A, which relieves arteriolar constriction and reduces peripheral resistance through its action on the blood pressure reflex receptors in the carotid sinus.

Added advantages for long-term or difficult patients. Salutensin will reduce blood pressure (both systolic and diastolic) to normal or near-normal levels, and maintain it there, in the great majority of cases. Patients on thiazide/rauwolfia therapy often experience further improvement when transferred to Salutensin. Further, therapy with Salutensin is both economical and convenient.

Each Salutensin tablet contains: 50 mg. Saluron® (hydroflumethiazide), 0.125 mg. reserpine, and 0.2 mg. protoveratrine A. See Official Package Circular for complete information on dosage, side effects and precautions.

Supplied: Bottles of 60 scored tablets.

References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

all the antihypertensive benefits of thiazide-rauwolfia therapy plus the specific, physiologic vasodilation of protoveratrine A

Dr. January: I presume you are asking whether steroids administered during the course of acute rheumatic fever diminish the frequency of valvular disease. This is not a settled point at the moment, but it seems to me that the data more and more suggest that there is less crippling valvular disease in patients treated with steroids than in those treated with salicylates alone.

Student: I should like to ask Dr. Ehrenhaft whether finger fracture is more acceptable than is the use of a dilator.

Dr. Ehrenhaft: The mode of operation has changed in recent years. Some operators still prefer to reoperate upon those patients by closed technics, using transventricular dilators which are introduced through the tip of the left ventricle and through the mitral orifice. In some patients, good results may be obtained. Recently, we have felt that operation with direct visualization of the mitral valve and with the help of the heart-lung machine is the procedure of choice. Our reasons are, first, that we were able to achieve little at the first operation when we used the closed method, and second, that the valves never improve and indeed become worse during the ensuing years, with calcification, further distortion and associated insufficiency.

I should like again to point out that reoperation in some patients will not acheive a great deal, and in others it will just turn back the clock a few more years and give some symptomatic improvement. Undoubtedly, some mitral valves will be found so diseased as to be beyond the possibility of surgical repair, and total valve replacement by prosthesis is necessary. The latter, however, is still a highly experimental procedure.

Dr. Bedell: We have summarized the natural history of rheumatic mitral stenosis and have discussed the attempts made within the past 15 years to alter it. I think Dr. Ehrenhaft has been overly pessimistic. This patient was much benefitted by his first operation. He subsequently had six good years. Using Dr. Ehrenhaft's expression we can say that "the clock was turned back for six years." The man went back to work, and was a very productive citizen during that length of time.

STUDENTS' DIAGNOSES

Rheumatic heart disease with mitral stenosis and insufficiency
Pulmonary congestion.

DR. JANUARY'S DIAGNOSES

Rheumatic heart disease, with restenosis of the mitral valve
Cardiac failure.

CLINICAL DIAGNOSES

Rheumatic heart disease, with mitral stenosis and regurgitation
Cardiac failure.

SUMMARY OF NECROPSY FINDINGS

Chronic rheumatic heart disease
a. mitral stenosis, severe
b. mural thrombus, left atrium
c. chronic pericarditis
d. chronic passive hyperemia of lungs, severe
Pneumococcal pneumonia, bilateral
Multiple old infarcts of brain and spleen
Aplasia of right kidney, ureter and testicle
Meckel's diverticulum, ileum.

Coming Meetings

IOWA

Sept. 9-10	**Pediatrics.** S.U.I. College of Medicine, Iowa City
Sept. 12	**Fall Program for Physicians of the 11th District, sponsored by the Page County Medical Society.** Country Club, Clarinda
Sept. 17-18	**Midwest Interprofessional Conference.** Iowa State University, Ames
Sept. 28	**"Focus on Youth"—Fall Conference of the Governor's Commission on Children and Youth.** Memorial Union, Iowa State University, Ames
Sept. 28-29	**Urology.** S.U.I. College of Medicine, Iowa City

CONTINENTAL U. S.

Aug. 2-4	**Anesthesiology.** University of California, Los Angeles
Aug. 6-10	**International Society for Clinical and Experimental Hypnosis.** Benson Hotel, Portland, Oregon
Aug. 6-10	**Fifth Annual Postgraduate Course in Pediatrics (University of Colorado Department of Pediatrics and the Office of Postgraduate Medical Education).** Stanley Hotel, Estes Park, Colorado
Aug. 12-15	**Seminars in Internal Medicine (UCLA).** University Residential Conference Center, Lake Arrowhead, California
Aug. 15-19	**Pediatrics (UCLA).** University Residential Conference Center, Lake Arrowhead, California
Aug. 16-18	**Evaluation of Therapeutic Agents and Cosmetics.** University of California at Los Angeles
Aug. 19-25	**International Congress for Microbiology.** Montreal, Canada
Aug. 24-25	**Endocrine Aspects of Obstetrics and Gynecology.** University of California, Los Angeles
Aug. 25	**American Institute of Ultrasonics in Medicine.** Biltmore Hotel, New York City
Aug. 26-27	**American Academy of Physical Medicine and Rehabilitation.** Hotel Commodore, New York City
Aug. 26-Sept. 1	**The Special Child in Century 21 (Second National Northwest Summer Conference).** Health Sciences Auditorium, University of Washington, Seattle
Aug. 26-Sept. 1	**International Congress of Radiology.** Queen Elizabeth Hotel, Montreal, Canada
Aug. 27-30	**American Association of Clinical Chemists.** Mira Mar Hotel, Santa Monica, California
Aug. 28-31	**American Congress of Physical Medicine and Rehabilitation.** Hotel Commodore, New York City
Aug. 28-Sept. 5	**Fifth World Congress on Electron Microscopy.** Philadelphia
Aug. 29-30	**Medical Aspects of Athletics.** University of California San Francisco Medical Center, Berkley Campus

Aug. 30-Sept. 8	**American Society of Clinical Pathologists.** Palmer House, Chicago
Aug. 30-31	**1962 AMA Institute.** Drake Hotel, Chicago
Sept. 1-4	**College of American Pathologists.** Palmer House, Chicago
Sept. 4-8	**World Forum on Syphilis and Other Treponematoses (American Venereal Disease Association, American Social Health Association, and USPHS).** Sheraton Park Hotel, Washington, D. C.
Sept. 4-14	**Intensive Review of Internal Medicine (University of Southern California).** Los Angeles County Hospital, Los Angeles
Sept. 6-7	**New Concepts in Arthritis.** University of California, San Francisco
Sept. 6-8	**American Association of Obstetricians and Gynecologists (members and invited guests).** The Homestead, Hot Springs, Virginia
Sept. 9-13	**Thirteenth Biennial International Congress (International College of Surgeons).** Waldorf-Astoria, New York City
Sept. 9-15	**XII International Congress of Dermatology.** Shoreham and Sheraton Park Hotels, Washington, D. C.
Sept. 10	**Board Review, Internal Medicine, Part I.** Cook County Graduate School of Medicine, Chicago
Sept. 10-14	**Surgery of the Cornea.** New York University Postgraduate Medical School, New York City
Sept. 10-14	**Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago
Sept. 10-14	**Protoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago
Sept. 10-14	**Internal Medicine—A Selective Review.** University of California, San Francisco
Sept. 10-21	**Surgical Technic.** Cook County Graduate School of Medicine, Chicago
Sept. 16-19	**Seventy-third Annual Meeting of the Washington State Medical Association.** Davenport Hotel, Spokane
Sept. 16-19	**Annual Meeting of the Colorado Medical Society.** International Center, Broadmoor Hotel, Colorado Springs
Sept. 17-19	**Research Seminar on Fibrinolysis.** University of Colorado Medical Center, Denver
Sept. 17-20	**Sixty-fourth Annual Meeting, American Hospital Association.** Palmer House and McCormick Place, Chicago
Sept. 17-21	**Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago
Sept. 17-21	**Gynecology, Office and Operative.** Cook County Graduate School of Medicine, Chicago
Sept. 17-21	**Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs (American College of Chest Physicians).** Warwick Hotel, Philadelphia
Sept 17-Nov. 9	**Occupational Medicine.** New York University Postgraduate Medical School. New York City
Sept. 20-21	**Current Concepts in Obstetrics and Gynecology (University of Southern California).** Statler-Hilton Hotel, Los Angeles
Sept. 20-22	**Clinics in the Surgical Specialties.** University of California, San Francisco
Sept. 24-27	**Mental Hospital Institute (American Psychiatric Association).** Americana Hotel, Bal Harbour, Florida
Sept. 24-28	**Surgery of Stomach and Duodenum.** Cook County Graduate School of Medicine, Chicago
Sept. 24-28	**Pulmonary Disease Seminar (University of Colorado Medical Center).** Fitzsimons General Hospital, Denver
Sept. 26-28	**Michigan State Medical Society.** Sheraton-Cadillac Hotel, Detroit

ABROAD

Aug. 8-15	**International Fertility Association, 4th World Congress,** Hotel Copocabana, Rio de Janeiro. Write: Dr. Maxwell Roland, Secretary, 109-23 71st Road, Forest Hills 75, New York
Aug. 9-15	**International Congress on Nutrition.** Edinburgh, Scotland. Write: Secretary, 6th International Congress on Nutrition, Department of Clinical Chemistry, Royal Infirmary, Edinburgh
Aug. 24-30	**International Association for Child Psychiatry and Allied Professions.** Kurhaus Hotel, Scheveningen, Holland. Write: Dr. P. van den Broek, Holland Organizing Center, Lange Voorhout 16, The Hague, Holland
Sept. 2-5	**Third International Congress of Neuro-Psycho-Pharmacology.** Munich, Germany. Write Prof. agr. P. Deniker, c/o Hospital Sainte-Anne, 1 rue Cabanis, Paris 14, France
Sept. 2-8	**Symposium on Brain Edema.** Vienna, Austria. Write Dr. Pearce Bailey, c/o NINDB, Institut Bunge, Berchem-Antwerp, Belgium
Sept. 2-9	**Fifth World Congress for Prophylactic Medicine and Social Hygiene.** Bad Aussee, Austria. Write Dr. E. Berghoff, Piaristengasse 41, Vienna 8, Austria
Sept. 3-7	**First International Confercnee on Water Pollution Research.** London. Write: Mr. W. Wesley Eckenfelder, Jr., Manhattan College Environmental Engineering Research Laboratory, 514 Sylvan Avenue, Englewood Cliffs, New Jersey
Sept. 3-7	**First Europcan Congress of Anesthesiology.** Vienna, Austria. Write Dr. Rudolf Kucher, Postgraduate Medical School, Alserstrasse 4, Vienna 9, Austria
Sept. 5-8	**International Congress of Internal Medicine,** Munich, Germany. Write: Professor Dr. E. Wollheim (President of Congress), Luitpoldkrankenhaus, Wurzburg, Germany
Sept.	**International Congress of Infectious Pathology,** Bucharest, Rumania. Write: Professor S. Nicolau, Via Parigi, 7-Bucharest
Sept.	**Third International Conference on Alcohol and Road Traffic,** London. Write: Mr. J. D. J. Havard, Secretary, Committee on Management, British Medical Association House, Tavistock Square, London
Sept. 5-8	**Sixth International Society of Audiology Congress.** Leiden, The Netherlands. Write: Dr. Trenque, 4 rue Montvert, Lyon, France
Sept. 9-15	**Tenth International Congress of Pediatrics.** Lisbon, Portugal. Write: Prof. M. Cordeiro, Clinica Pediatrica Universitaria, Hospital de Santa Maria, Av. 28 de Maio, Lisbon, Portugal
Sept. 9-15	**Ninth Congress of the International Society of Haematology.** Mexico, D. F. Write: Prof. G. Mathé, 11 bis rue Vanentin-Haüy, Paris, France, or Dr. J. L. Tullis, 1190 Beacon Street, Brookline 46, Mass.
Sept. 11-17	**Twenty-second International Congress of Physiological Sciences.** Leiden, The Netherlands. Write: Dr. J. van Noordwijk, Plderweg 20, Amsterdam-0, Netherlands
Sept. 17-21	**Colloquium on Hormones and the Kidney.** London. Write Mr. P. C. Williams, c/o Imperial Cancer Research Fund, Burtonhole Lane, London
Sept. 17-22	**International Union Against Tuberculosis.** Paris. Write International Union Against Tuberculosis, 15 rue Pomereau, Paris 16
Sept. 17-24	**Eighteenth International Congress of the History of Medicine.** Warsaw and Cracow, Poland. Write Organizing Committee, International Congress of the History of Medicine, Warszawa, Chocimska 22, Poland
Sept. 20	**Fourth International Conference on Surgery of the Hand.** Paris. Write Dr. Luc Gosse, c/o Hospital de Nanterre, 3 av. de la Republique, Nanterre (Seine), France
Sept. 28-30	**Fifth International Colloquium on Medical Psychology.** Brussels and Louvain. Write Dr. P. H. Davost, 2 rue de Rohan, Rennes, France
Oct.	**American Society of Plastic and Reconstructive Surgery.** Hawaiian Village Hotel, Honolulu. Write T. Ray Broadbent, M.D., 508 East South Temple, Salt Lake City, Utah
Oct. 2-5	**International Congress for Prophylactic Medicine and Social Hygiene.** Bad Godesberg, West Germany. Write: D. A. Rottmann, Liechtensteinstrasse 32, Vienna, Austria
Oct. 7-13	**World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.
Oct. 22-28	**International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.
Nov. 11-16	**World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19
Dec.	**International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines
Jan. 25-Feb. 6, 1963	**Operation: Surgical Specialties (West Indies Congress of the International College of Surgeons).** Cruising aboard the S.S. Santa Rosa; clinical meetings in Puerto Rico, Jamaica, Haiti, Venezuela, Netherland West Indies. For arrangements contact International Travel Service, Inc., 116 South Wabash Avenue, Chicago 3
Feb. 20-24, 1963	**Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Who Is Your Consultant in Laboratory Medicine—A Physician or a Layman?

According to a recent article in MEDICAL WORLD NEWS, there are now 1,783 laboratories in the United States operated by non-M.D.'s. In almost every state in the union, in other words, laymen are practicing medicine, and physicians are consulting them. Please take note of the resolution approved by the AMA House of Delegates in 1961: "RESOLVED, that the American Medical Association hereby declares that the proper conduct of laboratory analyses is a medical professional responsibility and all specimens for such analyses should be referred to laboratories supervised by fully qualified and licensed physicians."

Some of our readers are undoubtedly patronizing lay laboratories without giving thought to the medical and ethical implications of such a practice. The pathologists of the state of Iowa have worked diligently to furnish adequate laboratory services for the physicians of Iowa. They should be considered your consultants in laboratory medicine.

We realize that every physician is bombarded with advertising literature from out-of-state lay-operated laboratories. Let us pause to ponder the situation very briefly. First, remember that non-physicians are not bound by medical ethics. Second, you have no assurance that the advertising laboratories are actually capable of the accurate performance of the procedures that they advertise. Third, consider whether the director of the laboratory to which you refer your specimens is a physician whom you can phone, to discuss your problems. If he is a fellow physician, he will be glad to offer professional help to you, the referring physician, at any time.

Because of the wide range of services the pathologist offers, because of his willingness to repeat determinations when indicated, and because he realizes he must employ superior technical personnel, he cannot possibly compete in price with the lay-operated laboratory. However, the personal integrity and professional competence of the pathologist are at stake each time you submit a specimen to him. He is therefore obliged to see that the work performed under his supervision is as reliable as possible, in the light of current methodology and with the use of adequate quality-control measures.

A recent inspection of lay laboratories in a large eastern metropolitan area revealed a number of startling shortcomings. One of these was the reporting of procedures that can be performed only on certain instruments, when those instruments, in fact, were still crated in the laboratory storeroom. Another was the offer to perform and report results of tests which are impossible to do "by mail," e.g., the sedimentation rate.

The following are recommendations to physicians from the Illinois Society of Pathologists: (1) Beware of the laboratory which ADVERTISES medical services, or is incorporated. (2) Demand QUALITY CONTROL in laboratory medicine. (3) Beware of the laboratory which is owned and operated by a non-physician who advertises a physician's services. (4) Know your referral laboratory —the director, his education and methods, his staff and his facilities. (5) Avoid CONTRACT SERVICES in laboratory medicine—Your patient may suffer. (6) Know your consultant in laboratory medicine as well as you know the other physicians with whom you consult in the care of your patients.

If we are to maintain and advance the standards of medical care above the current peak, we must be wary of all parties who are attempting to make inroads into the practice of medicine. It is our purpose in this editorial to call your attention once again to an area in which the non-physician is seeking to "nibble away" at what is legally, ethically, and properly the practice of medicine.

Page County Society to Present Fall Program

The Page County Medical Society will sponsor a fall program for physicians in the 11th Councilor District on September 12. All other interested physicians will be welcome to join the group at the Country Club in Clarinda to hear the following speakers and discussions.

Donal Dunphy, M.D., professor and head of pediatrics, S.U.I., "Gastroenteritis in Infancy."

F. Miles Skultety, M.D., associate professor of neurosurgery, S.U.I., "The Diagnosis and Treatment of Brain Tumors."

William E. Connor, M.D., associate professor of internal medicine, S.U.I., "The Treatment and Prevention of Coronary Heart Disease."

The members of the program committee for this event are Drs. H. S. Frenkel and F. S. Sperry, both of Clarinda, and Dr. J. R. Eisenach, of Shenandoah.

Mitral Stenosis

The editors want particularly to direct attention to the S.U.I. Clinical Pathologic Conference in this issue of the JOURNAL. It deals with attempts at correction of mitral stenosis, for which many physicians had high hopes just a few years ago.

Apropos of the statements by Drs. L. E. January and J. L. Ehrenhaft, in the CPC, two recently published articles on mitral stenosis are particularly interesting. The first, by Olesen,* of Copenhagen, concerns 271 patients who were treated medically, and the other, by Lowther and Turner,** of Edinburgh, is an analysis of 500 patients with proved mitral stenosis who were treated by valvotomy.

The patients covered in the Danish study were under the care of Dr. Erik Warburg at the University Hospital or were seen in private consultation during the years 1933-1949. Two separate follow-up studies were carried out, the first in 1951-1953, and the second in 1959. The periods of observation had averaged 11 years in the first study, and 18 years in the second. The author examined 78 of 82 survivors in the earlier period of observation, and 31 of 45 survivors in the 1959 study.

At the time of the first observation, the women outnumbered the men 2.5 to 1. The ages ranged from 14 to 73 years, the mean being 41.5 years for each sex. A large proportion of the patients were in an advanced stage of the disease when first seen. Atrial fibrillation was present in 57 per cent, and 62 per cent of the patients had cardiac enlargement. According to the classification approved by the American Heart Association, there were 21 per cent in Class II; 59 per cent in Class III; and 20 per cent in Class IV.

In the 1951-1953 study, a total of 189 of the 271 patients were found to have died (70 per cent). At the time of the 1959 follow-up, a total of 226 of the 271 patients had died (83 per cent). Their ages at death had ranged from 14 to 78 years. The mean age at death had been 48.0 years, almost two years lower in men than in women. Sixty-two per cent had died of congestive heart failure or pulmonary edema, 22 per cent from thromboembolism; and 8 per cent from infections.

For the total series of 271 patients, the median survival time had been 6 to 7 years. The survival rate after 10 years had been 34 per cent, and after 20 years only 20 per cent were still living. Of the 82 survivors examined in 1951-1953, 49 had deteriorated; and 32 of the 45 survivors in the 1959 study gave evidence of deterioration.

Patients with atrial fibrillation and with cardiac enlargement had had a lower survival time than patients without these findings. A decreased functional capacity had resulted in a decreased survival rate. Patients with right axis deviation and/or increased hilar markings, indicating increased pressure in the pulmonary circulation had had a low rate of survival.

The author concluded that symptomatic mitral stenosis in the majority of cases is a progressive disease with a grave prognosis. Mitral valvotomy has been established as a reasonably safe and effective procedure, and should be considered in the treatment of mitral stenosis. Patients with recognized pulmonary hypertension or with progressive symptoms should be evaluated for surgery. The patients covered by his studies did not include ones with asymptomatic mitral stenosis, but in patients with slight to moderate symptoms and normal sinus rhythm at the first observation, he said that the survival rates are so high that operation cannot be advised for this group as a whole. The same point of view seems to him to apply to patients with asymptomatic mitral stenosis. Follow-up studies of operated mitral stenosis have indicated, he believes, that operated patients live longer than medically-treated ones do, but longer periods of follow-up are necessary before a final evaluation of the benefits can be made.

Lowther and Turner reported on the first 500 cases of mitral stenosis treated by valvotomy on the cardiac service of Western General Hospital, Edinburgh. They had been operated upon during a period of 11 years, and the series had been completed one year before the report was prepared.

The group of 500 patients consisted of 390 females and 110 males. Ninety-nine of the group were under 30 years of age; 344 were between 30 and 49 years of age; and 57 were between 50 and 60 years of age. Atrial fibrillation was present in 39 per cent of the operated patients; 22 per cent had cardiothoracic ratios exceeding 60 per cent. Calcification of the mitral valve was present in 179 patients (36 per cent); 137 of the group had an associated mitral regurgitation; 262 had aortic regurgitation; and 103 had associated aortic stenosis.

The overall operative mortality remained constant at 6 to 7 per cent over the 11-year period. In the series of 500 patients, there were 31 operative deaths. The incidence of atrial fibrillation, age 50 and over, cardiac enlargement and heavy calcification of the valve were two to three times more frequent among those who died than among those who survived the operation. The adverse factors usually occurred in combinations. The principal causes of the operative deaths were systemic embolism and traumatic mitral incompetence. The incidence of intracardiac clot, the authors concluded, increases with age and with heart size, and is much higher with atrial fibrillation. Traumatic mitral-valve incompetence is chiefly related to the precise pathologic changes in the valve, and is unpredictable.

Nowadays, according to the authors, death at or shortly after operation is infrequent, if patients have been properly selected, and occurs from the

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* Olesen, K. H.: Natural history of 271 patients with mitral stenosis under medical treatment. BRIT. HEART J., 24:349-357, (May) 1962.

** Lowther, C. P., and Turner, R. W. D.: Deterioration after mitral valvotomy. BRITISH M. J., 1:1027-1036 (Apr. 14), and 1102-1107 (Apr. 21), 1962.

unpredictable hazards of systemic embolism or traumatic mitral-valve incompetence, or in patients known to be poor operative risks. Death frequently occurs in patients with tight mitral stenosis, in whom treatment has been delayed and in whom good results would have been expected if they had had an opportunity to secure surgical treatment promptly. The Edinburgh investigators state their philosophy very clearly: "It is very important that surgical treatment should at least be considered in every patient in whom the diagnosis of mitral stenosis is made, and if symptoms cannot be attributed to some other condition, operation should usually be advised. The decision is often difficult, so that in practice this means that almost all patients should be referred to a centre with special experience."

In the first group of 200 patients operated upon, the results were classified as "good" in 84 per cent after the first year. The "good" results fell by only 10 per cent over the first five years, but diminished by another 10 per cent between the fifth and the sixth year. Thereafter, deterioration was progressive. By the end of eight years, less than 50 per cent had maintained a "good" result. By the ninth postoperative year, those patients who had maintained a "good" result without interruption were down to 20 per cent. However, many of these have been reoperated and are again improved. From this experience, it seemed evident that mitral valvotomy materially benefited the majority of patients for five to six years, but that thereafter the proportion with less than satisfactory results showed a steady increase.

Restenosis of the mitral valve has been the most frequent single cause for deterioration after valvotomy. Of the first 268 patients who were followed for more than five years after valvotomy, 92 were subjected to a second operation, and severe stenosis was found in all but six of the group. The incidence of restenosis increased year by year, rising from 5 per cent at the end of five years, to 70 per cent among the 37 patients who had been followed for nine years. The average interval between operations was seven years.

From their study, Lowther and Turner concluded: "Although most patients with severe mitral stenosis are improved by valvotomy, surgical treatment is but an incident in the relentless progress of rheumatic disease, whether from activity of the rheumatic process or from the progressive fibrosis which follows activity."

CHANGE IN PLACE AND DATES
IMS ANNUAL MEETING
Fort Des Moines Hotel
Des Moines
April 7-10, 1963

Another Misrepresentation in the British Press

The medical profession, individually and collectively, is not above criticism, and valid criticism can do it a great deal of good. But intemperate accusations, misrepresentations and vilifications are resented. For example, an unbridled attack on the American physician and a wholesale falsification of medical care in this country appeared in an article by Simon Freeman entitled "General Practice in America," in the MANCHESTER GUARDIAN on May 23, 1962. After a visit to this country, Mr. Freeman seems to have returned to Britain an authority on the status of medicine in the United States.

In his introductory paragraph is this unrestrained assertion: "The impression which strikes one with startling force from the outset is that doctors are both despised and disliked by a large cross-section of the American public. The suggestion that medicine is a vocation is greeted with ribald laughter; doctors are believed to be taking the public, by and large, for the biggest ride since the days of Al Capone."

The British journalist then proceeds to present what he terms "facts," but which are for the most part only superficial and biased evaluations of the socioeconomics of medicine in America. Indeed, several of his "facts" are ludicrous. He says, for example, that 40 to 45 per cent of the population of New York City are "indigent" and receive excellent care in 36 public health centers and in many first-rate municipal hospitals. At the other extreme, he says, are 5 to 10 per cent who are sufficiently affluent to provide for their own care. But he asserts that there remain about one-half of the people of New York City for whom medical care is a "nightmare." For them, he declares, physicians' fees are prohibitive, insurance against illness is a very costly business and the coverage is unsatisfactory. According to this "authority," Blue Cross provides limited coverage for the cost of a bed *and the services of a specialist,* for the inpatient, but does not cover the cost of drugs at any stage of his illness. He adds that further insurance can be taken out, at great expense, for partial coverage of doctors' bills only, but that none is available to cover the cost of drugs, even in part.

He then points out that the aged and retired persons in this 50 per cent "middle of the road" population are in a sorry plight, and he erroneously asserts that their medical insurance, however limited it may have been, has to cease when they reach a specified age.

Mr. Freeman castigates the American Medical Association for its willingness to "go to any length to maintain the present state of affairs in medical practice." He properly praises the American Academy of General Practice for "fighting a formidable

battle and achieving a fair amount of success." But he makes much of the reluctance of New York physicians to make home visits, and says that is another reason why American standards of care must be considered inferior to the British.

He has great praise for the work and the sense of vocation of all doctors connected with the public health services. He highly commends the Health Insurance Plan of Montefiore Hospital, in the Bronx, which he considers the nearest approach to the British National Health Service, and which he says may be pointing the direction that America will take in the future.

Every visitor to this country is entitled to appraise any aspect of our American way of life and to express his ideas about it. However, a responsible journalist and the newspaper that employs him, or at least publishes his statements, have a responsibility for making an accurate report of readily ascertainable facts and for presenting an honest picture of conditions as they exist. These things, Mr. Freeman and the MANCHESTER GUARDIAN did not do. It would be interesting to know how thorough a study Mr. Freeman made of his subject, how many areas of the United States he investigated, and how many health insurance policies he read.

It would also be interesting to know what political philosophy Mr. Freeman professes.

The Role of Surgery in Acute Osteomyelitis

Many patients with acute osteomyelitis are cured by antibiotics alone, if those materials are used early enough in the disease and if they are continued for a long enough period of time. For this reason, according to Harris,* a British orthopedic surgeon, there is a tendency to forget the important role of surgery in this disease, and the significance of the timing of operative drainage.

Harris declares that the complications of acute osteomyelitis can be prevented by early operation and through the use of appropriate antibiotics. He states his policy very clearly: "If the illness has lasted 48 hours or more when the patient is admitted, drain the same day; if less than 48 hours, drain if there is no clinical improvement after 48 hours' antibiotic therapy, especially if the sensitivity of the organism is not known. If there is any doubt about the date of onset, it is best to drain. Unless the diagnosis is made earlier than it is at present, this policy will mean that almost all patients will have an operation; it will also mean that some unnecessary operations will be performed, because of the virulence of the organism and the patient's resistance are variable, but it seems a small price to pay if the disaster of chronic bone infection can be prevented." The author defines a complication as a chronic infection with a discharging sinus or obvious sequestrum formation.

The recommendation for early operation of acute osteomyelitis is based upon the pathologic process which occurs in the bone during the first few days of the illness. According to Harris, pus is formed by the second or third day, the periosteum is elevated over a variable area, and the blood supply has been compromised; the pus is under considerable pressure, and if this pressure is not relieved, thrombosis of the vessels may occur, leading to some degree of bone necrosis. Early and complete decompression of the bone before the blood supply is interrupted will prevent or minimize the amount of necrosis. In support of his thesis, Harris quotes from Trueta and Morgan, who stated: "Penicillin alone cannot prevent bone changes from occurring after the blood supply is interrupted; early surgery is just as necessary now as in pre-penicillin times."

A coagulase-positive staphylococcus is the most common cause of acute osteomyelitis. Staphylococci have become increasingly resistant to penicillin, and thus the importance of sensitivity determination is apparent. Blood cultures are sterile in about 50 per cent of the cases. In 84 unselected cases that Harris studied, however, 64 organisms were isolated, and 35 per cent of them were resistant to penicillin.

One important advantage of early operative incision and drainage is that the sensitivity report on the causative organism can be provided by the day following the operation. It is postulated that the increasing number of complications may be due, in part, to the use of penicillin in cases where subsequent sensitivity tests show the organism to be resistant to the drug.

In Harris's series of 84 patients, a combination of early antibiotic therapy and early surgery gave the best results. Operative incision of the periosteum should be done in order to drain the subperiosteal pus. The underlying bone should be drilled in order to provide adequate decompression. Simple aspiration is unsatisfactory as a method of decompression, but the author considers aspiration the method of choice in septic arthritis and in osteomyelitis of the spine.

When we look back to the days when "once osteomyelitis, always osteomyelitis" was a reality, it may seem to us that the modern treatment of the disease is truly a miracle. But if the acute infection is to be prevented from becoming a chronic, disabling bone disease, early diagnosis and prompt antibiotic therapy are essential, and early operative drainage is frequently necessary.

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* Harris, N. H.: Place of surgery in early stages of acute osteomyelitis. BRITISH M. J., 1:1440-1444, (May 26) 1962.

A Community Survives Disaster

The report of an explosive outbreak of staphylococcal food poisoning at a high school in Connecticut* contains some valuable lessons for the medical profession.

Out of a group of 852 children, teachers and other school personnel who had been served luncheon in the school cafeteria, 234 becaue acutely ill within a few hours. Children who were apparently perfectly well one minute, became violently ill during the next, with nausea, vomiting and prostration. They rapidly appeared to go into a state of collapse, with pallor, cyanosis of the nail beds and extreme weakness. Some of the youngsters had systolic blood pressures as low as 60 mm. Hg, accompanied by bradycardia. Abdominal cramps and diarrhea followed within a few hours, at which time temperatures of around 102°F. were common. At the height of the outbreak, sick children were vomiting in the classrooms, in the health room, in the corridors and in all available toilets. To prevent injury from falls, all sick children were taken to the gymnasium and were made to lie on mats on the floor.

Shortly after the onset of the outbreak, it was recognized that staphylococcal food poisoning probably was responsible, and it was decided that all the ill children should be taken to the New Britain General Hospital, some four miles distant from the school. All available private cars, ambulances and police cars were utilized to transport them, and in a period of two hours, 205 sick children were taken there. The children and teachers who as yet had been unaffected acted as stretcherbearers, or helped the ill children into cars. No medication of any kind was given at the school.

The hospital had been alerted, shortly after the outbreak, to expect a large number of acutely ill children with food poisoning. Fortunately, the hospital had a disaster plan for just such an emergency, and had recently practiced it. Upon admission, each patient was tagged with a wrist card that could serve for identification and as a convenient place to record medication and other pertinent clinical data. From the emergency room, patients were transferred to an intensive-care unit on the same floor, to a large classroom on the floor below, and to a physiotherapy room on the fifth floor.

In most patients, treatment consisted of gastric lavage; saline and glucose infusions; the administration of antiemetics intramuscularly; and vasopressors given intravenously and intramuscularly. Some 60 physicians, 70 nurses, 39 aides, 6 orderlies, and the technical and administrative staff of the hospital worked together to meet the emergency. Those patients who weren't violently ill were discharged within a few hours after admission, but some of them had to be readmitted for intravenous fluid and vasopressor therapy. At 9 p.m. all of the remaining patients were evaluated, and 38 were admitted for overnight observation. They were discharged the following morning, with the exception of three who were kept in the hospital for another 24 hours. There were no deaths, and there were no significant complications.

Epidemiological investigation revealed that the outbreak had been caused by a coagulase-positive Staphyloccus aureus, phage type 7. The offending food had been a potato salad, for which potatoes had been prepared the day before and kept overnight without refrigeration. Of the foods served, the potato salad contained the largest numbers of staphylococci, but the same organism was cultured from washings from the noses, throats and hands of the cafeteria workers. The identical organism was found in the stools of the affected children. All of the patients had eaten the salad, and no one had become ill who had not eaten the salad. One hundred thirty-two children who had eaten the salad did not become ill.

The results of the study lead to the conclusion that the source of the infection was in the nares of the kitchen workers. The nasal bacteria probably were carried to the potatoes during the process of peeling. Bacterial growth proceeded during the night, and was accelerated by the addition of egg and mayonnaise on the morning of the outbreak. Though the salad was refrigerated for 1½ hrs. before serving, the bacterial growth continued, particularly at the center of the salad. It is postulated that those who became violently ill were served from the central portion of the salad, which contained a large amount of the toxin. Those who escaped illness are supposed to have been served from the periphery, which was more properly refrigerated and which contained less toxin.

If we are to profit from this lesson, we must realize that the same unfortunate type of outbreak can occur in our own schools or elsewhere in our own communities. Though responsibility lies primarily with the health officer, every physician should make certain that the school cafeterias in his town are properly supervised and inspected. Furthermore, it is the duty of the medical staffs and administrations of all hospitals to plan ways of dealing with calamites of this sort, no less than with the aftermaths of fires, tornadoes and nuclear attacks.

How well would your community and your hospital have met the emergency that occurred in the Connecticut high school?

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* Chotkowski, L. A.: Staphylococcal food poisoning; explosive outbreak among 852 served in high school cafeteria. CONNECTICUT MED., 26:381-386, (June) 1962.

President's Page

The officers of your Society are glad to learn that the change in place and dates for the 1963 annual meeting of the Iowa Medical Society, announced in a recent NEWS BULLETIN, has been enthusiastically received by physicians throughout the state.

The meeting, as rescheduled, is to be held at the Hotel Fort Des Moines on April 7 to 10, 1963.

The cost to the Society for accommodations at the hotel will be very considerably less than the rental that it has had to pay for the Veterans Memorial Auditorium, and it is felt that IMS members will have success, at the hotel, in finding one another to renew acquaintances and enjoy themselves.

George H. Scanlon

President

AMERF Contributions

American physicians contributed more than $4,700,000 to the nation's medical schools last year, the American Medical Association has announced.

The AMA says physicians gave $1,303,161.10 through its Education and Research Foundation and $3,428,413.09 in direct contributions to the schools, for a grand total of $4,731,574.19. Money given directly to the medical schools came from 55,688 physican contributors across the country.

Since the Foundation (formerly called American Medical Education Foundation) was established in 1951, physicians have donated more than $11,500,000 through it. Money contributed to the Foundation may be designated for a specific medical school. Contributions not designated are divided equally among the country's 86 schools.

Deans of the schools may use Foundation grants at their discretion for special projects or expenses outside of their budgets.

The AMA established the Foundation so that physicians could play a greater part in financial support of the nation's medical schools. Every dollar contributed goes to the medical schools, since operating costs are assumed by the AMA.

Of the total contributions made through the Foundation last year, $202,219.27 was raised by the Woman's Auxiliary to the AMA.

AMERICAN MEDICAL ASSOCIATION
EDUCATION AND RESEARCH PROGRAM
1961 CONTRIBUTIONS TO MEDICAL SCHOOLS

	AMERF Contributions	Given Direct by Physicians
ALABAMA		
(Total amount, $18,480.78)		
Medical College of Alabama	$16,144.78	$ 2,336.00
ARKANSAS		
University of Arkansas School of Medicine (no report available on direct contributions)	8,270.52	
CALIFORNIA		
(Total amount, $396,719.74)		
College of Medical Evangelists	55,684.56	86,583.85
Stanford University School of Medicine	51,956.06	130,968.11
University of California School of Medicine, San Francisco	5,798.07	8,542.00
University of Southern California School of Medicine (no report available on direct contributions)	50,990.57	
University of California School of Medicine, Los Angeles	4,444.41	1,752.11
COLORADO		
(Total amount, $48,304.07)		
University of Colorado School of Medicine	19,221.75	29,082.32
CONNECTICUT		
(Total amount, $41,631.24)		
Yale University School of Medicine	7,518.91	34,112.33
DISTRICT OF COLUMBIA		
(Total amount, $93,234.35)		
George Washington University School of Medicine	11,999.57	22,500.44
Georgetown University School of Medicine	18,841.77	21,059.50
Howard University College of Medicine	5,287.07	13,546.00
FLORIDA		
(Total amount, $9,815.14)		
University of Miami School of Medicine	4,743.07	308.50
University of Florida School of Medicine	4,603.57	160.00
GEORGIA		
(Total amount, $117,240.70)		
Medical College of Georgia	7,326.09	14,071.56
Emory University School of Medicine	9,398.10	86,444.95
ILLINOIS		
(Total amount, $502,916.47)		
Chicago Medical School	39,778.57	117,615.00
Northwestern University Medical School	69,555.32	75,467.56
Stritch School of Medicine of Loyola University (no report available on direct contributions)	44,133.07	
University of Chicago, the School of Medicine	38,306.66	37,110.00
University of Illinois College of Medicine	54,473.28	26,477.01
INDIANA		
(Total amount, $47,163.79)		
Indiana University School of Medicine	43,688.29	3,475.50
IOWA		
(Total amount, $20,160.90)		
State University of Iowa College of Medicine	12,922.40	7,238.50
KANSAS		
(Total amount, $49,682.68)		
University of Kansas School of Medicine	17,530.68	32,152.00
KENTUCKY		
University of Louisville School of Medicine (no report available on direct contributions)	9,697.57	
LOUISIANA		
(Total amount, $164,196.17)		
Louisiana State University School of Medicine (no report available on direct contributions	8,244.08	
Tulane University School of Medicine	12,290.61	143,661.48

	AMERF Contributions	Given Direct by Physicians
MARYLAND		
(Total amount, $200,447.54)		
Johns Hopkins University School of Medicine	12,835.32	158,970.00
University of Maryland School of Medicine	13,142.22	15,500.00
MASSACHUSETTS		
(Total amount, $318,521.04)		
Boston University School of Medicine	8,380.07	101,626.11
Harvard Medical School	14,043.07	175,003.47
Tufts University School of Medicine	11,711.57	7,756.75
MICHIGAN		
(Total amount, $54,768.21)		
University of Michigan Medical School	18,606.25	21,865.95
Wayne State University School of Medicine	10,466.01	3,830.00
MINNESOTA		
(Total amount, $56,928.21)		
University of Minnesota Medical School	17,101.32	39,826.89
MISSISSIPPI		
(Total amount, $9,529.06)		
University of Mississippi School of Medicine	9,304.06	225.00
MISSOURI		
(Total amount, $229,172.44)		
St. Louis University School of Medicine	12,051.15	187,397.92
University of Missouri School of Medicine (no report available on direct contributions)	6,996.90	
Washington University School of Medicine	12,686.57	10,039.90
NEBRASKA		
(Total amount, $105,610.88)		
Creighton University School of Medicine	13,822.07	60,760.00
University of Nebraska College of Medicine	15,299.57	15,729.24
NEW HAMPSHIRE		
(Total amount, $15,402.53)		
Dartmouth Medical School*	3,202.53	12,200.00
NEW JERSEY		
(Total amount, $8,622.67)		
Seton Hall College of Medicine and Dentistry	7,487.67	1,135.00
NEW MEXICO		
University of New Mexico (no report available on direct contributions)	840.00	
NEW YORK		
(Total amount, $741,556.41)		
Albany Medical College	7,215.07	33,927.54
Columbia University College of Physicians and Surgeons	10,743.22	50,936.00
Cornell University Medical College	14,832.57	42,811.49
New York University College of Medicine	8,827.13	155,369.00
New York Medical College Flower and Fifth Avenue Hospitals	7,675.57	86,124.00
State University of New York College of Medicine, New York	5,768.07	5,751.00
State University of New York College of Medicine, Syracuse	5,983.57	2,093.00
University of Buffalo School of Medicine	7,980.57	104,414.45
University of Rochester School of Medicine and Dentistry	6,860.07	160,479.94
Albert Einstein College of Medicine	5,264.15	18,500.00
NORTH CAROLINA		
(Total amount, $153,715.89)		
Duke University School of Medicine	8,818.38	48,099.00
Bowman Gray School of Medicine of Wake Forest College	6,773.90	46,750.20
University of North Carolina School of Medicine	7,492.41	35,782.00
NORTH DAKOTA		
(Total amount, $9,618.34)		
University of North Dakota School of Medicine*	4,748.63	4,869.71
OHIO		
(Total amount, $169,161.40)		
Ohio State University College of Medicine	15,293.03	22,016.72
University of Cincinnati College of Medicine	13,792.10	44,947.80
Western Reserve University School of Medicine	13,720.32	59,391.43
OKLAHOMA		
(Total amount, $11,149.29)		
University of Oklahoma School of Medicine	9,849.29	1,300.00
OREGON		
(Total amount, $27,792.07)		
University of Oregon School of Medicine	15,283.07	12,509.00
PENNSYLVANIA		
(Total amount, $599,879.64)		
Hahnemann Medical College and Hospital of Philadelphia	14,661.57	57,845.34
Jefferson Medical College of Philadelphia	15,212.40	153,130.03
Temple University School of Medicine	17,657.07	51,739.33
University of Pennsylvania School of Medicine	22,728.87	115,612.48
University of Pittsburgh School of Medicine	16,062.07	90,538.30
Woman's Medical College of Pennsylvania	7,371.07	37,321.11

	AMERF Contributions	Given Direct by Physicians
SOUTH CAROLINA		
(Total amount, $25,536.00)		
Medical College of South Carolina	25,136.00	400.00
SOUTH DAKOTA		
(Total amount, $9,813.20)		
University of South Dakota School of Medicine*	7,383.20	2,430.00
TENNESSEE		
(Total amount, $127,800.26)		
University of Tennessee College of Medicine	16,018.62	7,660.00
Meharry Medical College	5,716.07	46,126.00
Vanderbilt University School of Medicine	20,041.57	32,238.00
TEXAS		
(Total amount, $36,602.66)		
Baylor University College of Medicine (no report available on direct contributions)	10,254.73	
University of Texas School of Medicine	15,594.23	221.00
Southwestern Medical School of the University of Texas	9,461.75	1,070.95
UTAH		
(Total amount, $61,677.51)		
University of Utah College of Medicine	16,057.07	45,620.44
VERMONT		
University of Vermont College of Medicine (no report available on direct contributions)	10,486.06	
VIRGINIA		
(Total amount, $58,473.02)		
University of Virginia School of Medicine	12,001.57	25,151.38
Medical College of Virginia	8,048.07	13,272.00
WASHINGTON		
(Total amount, $13,146.47)		
University of Washington School of Medicine	8,998.47	4,148.00
WEST VIRGINIA		
(Total amount, $17,469.64)		
West Virginia University School of Medicine	14,374.64	3,095.00
WISCONSIN		
(Total Amount, $124,119.06)		
Marquette University School of Medicine	14,908.18	50,728.50
University of Wisconsin Medical School	11,020.38	47,462.00
PUERTO RICO		
University of Puerto Rico School of Medicine (no report available on direct contributions)	5,188.57	

* Two Year Basic Science School.

Tobacco Suspected in Premature Deliveries

Prematurity, stillbirths, and brain damage have been linked with some previously unsuspected events of pregnancy and delivery in a nationwide research study including thousands of mothers-to-be and their babies.

The findings—the first important results of a long-range collaborative perinatal research project—were revealed recently by Dr. Richard L. Masland, Director of the National Institute of Neurological Diseases and Blindness, which is coordinating the project. The Institute is one of the seven National Institutes of Health, the major medical research arm of the U. S. Public Health Service.

"Although these are preliminary findings of continuing research and therefore should be viewed with caution," Dr. Masland said, in recent hearings before Congressional appropriations subcommittees, "they may prove to be promising leads for future investigation."

Now in its fourth year, the collaborative project has compiled data to date on more than 23,000 expectant mothers and 17,000 children enrolled at 15 participating medical centers. Analyses of these data have revealed the following early findings:

- Premature births—an important cause of brain damage and deaths—occur more frequently among mothers who smoke than among nonsmokers. (Infants weighing 2,500 grams or less were considered to be premature.) In addition, birth weight was found to be inversely proportional to the reported amount of smoking. These findings confirm the results of previous studies which have shown a relationship between cigarette smoking during pregnancy and prematurity.
- More than 40 per cent of a group of study infants diagnosed as abnormal at the 8-month psychological examination had suffered from breathing difficulties at or soon after birth.

In addition, Dr. Masland reported to Congress that individual investigators at the collaborating hospitals have published the following findings of special related studies:

- In efforts to identify mothers who run a high risk of losing their babies, investigators confirmed the finding of a previous study that there is a close relationship between fetal deaths and certain alterations in the concentration of blood proteins of expectant mothers. These results may lead to the development of preventive therapy.
- Additional evidence was uncovered to show that premature births may be caused by a symptomless urinary tract infection which cannot be detected by routine methods. Scientists at one of the collaborating institutions have devised a simple, sensitive test for detecting this infection.
- Investigators confirmed that infants of diabetic mothers weigh more than infants of nondiabetic mothers. However, postmortem studies showed that the brains of infants of diabetic mothers were comparatively smaller in weight and volume.
- High rates of prematurity and infant death were

found to be associated with findings suggestive of inflammation of the placenta, fetal membranes, and umbilical cord. In some 50 per cent of cases where such inflammation occurred, infection of the vagina, cervix, or both was also present, a discovery which emphasizes the importance of careful treatment of these infections during pregnancy.

• In studying the effects of an Asian flu epidemic on pregnancy outcome, scientists reported that this infection may affect the unborn child especially if it occurs during the early months of pregnancy. Especially important was the discovery that nearly 40 per cent of cases had no symptoms and could be diagnosed only by blood test.

• A possible basis for early detection of brain damage in young children was provided by studies showing that prolonged lack of oxygen is followed by an increase in the permeability of the blood-brain barrier to certain enzymes. Brain damage may then be diagnosed by measuring the increase in these enzymes in the spinal fluid.

• Improved techniques were developed at one of the collaborating hospitals to detect brain damage in infants by means of brain wave recordings (electroencephalograms). Moreover, the use of visual stimulation in conjunction with these recordings is providing criteria for determining brain maturation at birth.

A new phamphlet published by the NINDB describes in detail the purpose and operation of the collaborative project. Entitled "The Fateful Months When Life Begins," the leaflet is available from the Public Health Service, Washington 25, D.C., or may be purchased from the U. S. Government Printing Office, Washington 25, D.C., for 5 cents a single copy or $3.25 per 100 copies.

1962-63 Medical Postgraduate Conferences

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE
IOWA CITY

Aug. 1, Sept. 5, Oct. 3, Dec. 5, Jan. 9, Feb. 6, Mar. 6, Apr. 3, May 1, June 5, July 10	One-Day Ophthalmology Clinical Conferences (The first Wednesday of each month except November and January)
Sept. 19-20	Pediatrics
Dec. 5, March 14	Surgery
Sept. 28-29	Urology
Oct. 3, Dec. 7-8, Jan. 16	Otolaryngology
Oct. 5-6	Arthritis and Rheumatism
Oct. 13	Radiology
Nov. 7-8	Institute on Abnormal Newborn—Pediatric, Obstetric and Nursing Aspects
Nov. 13-15	Federal Aviation Agency Medical Seminar
Nov. 16	Otolaryngology Conference for General Practitioners
Nov. 30	Cardiac Diseases (½ day)
Nov. 30	Respiratory Diseases (½ day)
Jan. 10-11	Obstetrics and Gynecology
Feb. 12-15	Refresher Course for the General Practitioner
Mar. 27	Infertility and Endocrinology
May 3-4	Iowa Eye Association
June 10-14	American College of Physicians

Details of each conference will appear in the JOURNAL prior to the dates on which it is to be held.

Any requests for information should be addressed to Dr. John A. Gius, Director of Postgraduate Medical Studies, Office of the Dean, College of Medicine, Iowa City, Iowa.

Among the speakers at the Pediatric Conference September 19-20, will be Dr. Donald Pinkel, medical director of St. Jude Hospital at the University of Tennessee, and Dr. Milton Rapoport, professor of pediatrics at the Children's Hospital in Philadelphia. Topics to be discussed are malignant disease in children, the problems and management of mental retardation, chronic diseases in children, ulcerative colitis, and a group of interesting pediatric case studies.

On September 28 and 29, the Urology Conference will deal with the problems of pediatric urology, and one of the areas of discussion will be the treatment and management of urinary tract infections in children. A meeting of the Iowa Urological Association will be held in conjunction with this Conference, on the 28th.

Pediatric surgery will be the general theme of the December conference, and various aspects of hernia problems will be discussed at the March surgical conference.

INDUSTRIAL PHYSICIAN

The Ames Laboratory of the U. S. Atomic Energy Commission has an opening for an industrial physician.

The professional man we seek must have the following background:

- Physician with several years of medical practice, and preferably, with experience in the industrial medicine field.
- Must be capable of being in charge of the medical program of this laboratory.

Please forward résumé, including salary requirements to: Director, Ames Laboratory, Box 14A, University Station, Ames, Iowa.

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THE JOURNAL *Book Shelf*

BOOKS RECEIVED

STRABISMUS: SYMPOSIUM OF THE NEW ORLEANS ACADEMY OF OPHTHALMOLOGY, ed. by *George M. Haik*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $18.00).

CLINICAL NUTRITION, SECOND EDITION, ed. by *Norman Jolliffe*, M.D. (New York, Paul B. Hoeber, Inc., 1962. $23.50).

HOSPITALS, DOCTORS & DOLLARS, by *Robert M. Cunningham, Jr.* (New York, F. W. Dodge Corporation, 1962. $6.95).

SYNOPSIS OF OBSTETRICS, SIXTH EDITION, by *Charles E. McLennan*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $6.75).

THE CONSUMERS UNION REPORT ON FAMILY PLANNING, by *Alan F. Guttmacher*, M.D., and the editors of CONSUMER REPORTS. (Mt. Vernon, N. Y., Consumers Union of U. S., Inc., 1962. $1.75).

LIFE IN THE WARD, by *Rose Lamb Coser*, Ph.D. (East Lansing, The Michigan State University Press, 1962. $7.50).

COLLEGE STUDENTS IN A MENTAL HOSPITAL, by *Carter C. Umbarger, James S. Dalsimer, Andrew P. Morrison and Peter R. Breggin.* (New York, Grune & Stratton, 1962. $5.75).

PSYCHOANALYTIC EDUCATION (SCIENCE AND PSYCHOANALYSIS, VOL. V): ed. by *Jules H. Masserman*, M.D. (New York, Grune & Stratton, 1962. $9.75).

CURRENT PSYCHIATRIC THERAPIES, VOL. II, ed. by *Jules H. Masserman*, M.D. (New York, Grune & Stratton, 1962. $8.75).

THE NATURE OF PSYCHOTHERAPY, VOL. II, by *Walter Bromberg*, M.D. (New York, Grune & Stratton, 1962. $4.50).

PSYCHOANALYSIS OF BEHAVIOR, VOL. II, 1956-1961, by *Sandor Rado*, M.D. (New York, Grune & Stratton, 1962. $6.50).

DAY HOSPITAL: A STUDY OF PARTIAL HOSPITALIZATION IN PSYCHIATRY, by *Bernard M. Kramer*, Ph.D. (New York, Grune & Stratton, 1962. $2.75).

SUICIDE AND MASS SUICIDE, by *Joost Meerloo*, M.D. (New York, Grune & Stratton, 1962. $3.75).

TUMOUR VIRUSES OF MURINE ORIGIN (CIBA FOUNDATION SYMPOSIUM SERIES), ed. by *G. E. W. Wolstenholme*, M.B., and *Maeve O'Connor* (Boston, Little, Brown and Company, 1962. $10.75).

FUNDAMENTAL SKILLS IN SURGERY, by *Thomas F. Nealon, Jr.*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $8.50).

PRACTICAL ANESTHESIOLOGY, by *Joseph F. Artusio, Jr.*, M.D., and *Valentino D. B. Mazzia*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $7.75).

THE RELUCTANT SURGEON, by *John Kobler* (New York, Doubleday & Company, Inc., 1962. $1.45).

DIAGNOSIS AND MANAGEMENT OF PAIN SYNDROMES, by *Bernard E. Finneson*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $8.50).

BETWEEN US WOMEN: A WOMAN DOCTOR'S HANDBOOK ON PREGNANCY AND BIRTH, by *Laura E. Weber*, M.D. (New York, Doubleday & Company, Inc., 1962. $1.95).

DR. MARY WALKER: THE LITTLE LADY IN PANTS, by *Charles McCool Snyder*, Ph.D. (New York, Vantage Press, Inc., 1962. $3.95).

BOOK REVIEWS

ERRANT WAYS OF HUMAN SOCIETY, by *Julius Bauer*, M.D. (New York, Vantage Press, 1961. $3.00).

The author, an Austrian-American, is an internist who has taught medicine from Vienna to California. He writes this book as a sensitive person who has struggled with the frailties of human nature and of modern society. Much of what he says would be echoed by many practicing physicians. He deals briefly with deficiencies of modern society—with its mass psychology, its conformism, its gangs, and its errata in art and music. He tries to philosophize briefly about the lagging maturity of modern civilization—to tell us about the inadequacies inherent in modern religion, politics, occupational organizations and social organizations.

Most of his criticisms are valid. Most of us put our "heads in the sands" of daily activity, and ignore the decadence of our society. While mechanistic society has been advancing by tremendous strides, the moral and humanistic aspects of our development have been lagging. The author tries merely to point out the deficiencies, not to suggest therapy. In this regard he is like most doctors and other "Goldwaterians"—*against* everything, and *for* nothing. For this reason, the book is depressing. And yet, there must be some to cry out, as did the Jewish prophets of old, against the insidious decay of our culture. Perhaps others, coming later, will show us the way to salvation.—*Daniel A. Glomset*, M.D.

THE LOWER DIGESTIVE TRACT (PART TWO OF VOL. III, CIBA COLLECTION OF MEDICAL ILLUSTRATIONS), ed. by *Ernst Oppenheimer*, M.D., and illustrated by *Frank H. Netter.* (Summit, New Jersey, Ciba Pharmaceutical Co., 1962. $15.00).

This volume completes the portrayal of the digestive system in the excellent artistic manner of the noted medical illustrator Frank H. Netter. Previously, the "upper digestive tract" and the "liver, biliary tract and pancreas" were presented in separate volumes.

Enumeration of the section titles of this volume emphasizes the completeness of these medical illustrations: Development of the Digestive Tract (6 plates); Anatomy of the Abdomen (34 plates); Anatomy of the Lower Digestive Tract (34 plates); Functional and Diagnostic Aspects of the Lower Digestive Tract (26 plates); Diseases of the Lower Digestive Tract (71 plates); Diseases and Injuries of the Abdominal Cavity (14 plates); and Hernias (15 plates).

The discussion accompanying each illustrative plate provides completeness in the text, to give the reader an excellent review of the subject matter. Cross references to other plates enhance the total value.—*M. E. Alberts,* M.D.

SHOCK: PATHOGENESIS AND THERAPY. AN INTERNATIONAL SYMPOSIUM SPONSORED BY CIBA IN STOCKHOLM, SWEDEN DURING JUNE, 1961. (Berlin, Springer Verlag., 1962. $13.00).

The symposium is a collection of 31 papers presented by internationally famous investigators in experimental pathophysiology, and represents their current findings and theories on the origin and treatment of the shock syndrome. A brief discussion among the participants is recorded after each presentation. The majority of the authors offer well-documented research and logically developed concepts from their experiments concerning acute systemic arterial hypotension. For example, Dr. Fine, of Harvard, believes irreversible shock is due to a "weakened endotoxin-detoxifying capacity of the reticulo-endothelial system (of the liver), the consequence of which is that endotoxin, which is continuously entering the circulation from the gut, is free to produce irreversible collapse of the peripheral circulatory apparatus." Dr. Lillehei, of Minnesota, feels that in dogs the sympathomemetic activity of this endotoxin causes excessive vasoconstriction of the vascular bed of the bowel, resulting in hemorrhagic necrosis. If the blood flow to the superior mesenteric artery is maintained, irreversible shock will not occur. Hence he advocates the use of vasodilators and steroids in the clinical treatment of shock.

This symposium presents a broad survey of present-day trends in the experimental pharmacology and physiology of the shock syndrome; unfortunately carefully controlled clinical studies of the shock syndrome in man have been neglected. More work in this area would be desirable, e.g., to help determine why and when vasopressor agents or autonomic blocking agents should be used in clinical treatment of the complex shock mechanism.

This book is an interesting research reference rather than a clinical interpretation on the origin and treatment of shock.—*Jacob W. Scheeres,* M.D.

Interstate Offers Varied Program For GP's

The 47th annual Scientific Assembly of the Interstate Postgraduate Medical Association, to be held at the Palmer House, Chicago, October 1-4, offers 20½ hours of varied teaching (and A.A.G.P. Category II credit) for a registration fee of $10. The program is especially suited to the needs of generalists, as all lectures, panels and clinics are closely related to medical problems familiar to the physician who does not devote his time to a single specialty. Panels on "Arthritis," "Diabetes," "Tranquilizers and Energizers," the "Medical and Surgical Treatment of Duodenal Ulcers," and "Newer Treatment of Hypertension" are important parts of the three and one-half day program.

Interstate is not a "membership oranization," but offers an annual teaching program for practitioners interested in a varied review of new developments in the major branches of medicine. The 1962 Assembly program offers educational exposure to more than 90 prominent medical eduators, as teachers.

Those interested in full details of the program are urged to write for a brochure, by addressing a postal card to N. A. Hill, M.D., Secretary, Interstate Postgraduate Medical Association, Box 1109, Madison 1, Wisconsin.

Early Detection of Pancreatic Cancer

Recent clinical studies indicate that a diagnostic form of the antidiabetic drug Orinase may be a useful tool in early detection of cancer of the pancreas—up to now virtually impossible to pin down short of surgery. The compound appears to be possibly more sensitive than the standard glucose tolerance test (GTT) in showing the presence of a diabetic state and hence in helping to confirm the possibility of suspected pancreatic cancer, according to Philadelphia physicians who conducted the study. The drug, Orinase Diagnostic (sodium tolbutamide) was developed by research scientists of The Upjohn Company. Given by intravenous injection, it is regarded as a speedy and sensitive test for diabetes. An oral form of Orinase, widely used to control symptoms of diabetes, has been available since 1957.

Participants in the Philadelphia study were Drs. Donald Berkowitz, Sol Glassman, and Leonard Greenberg. The first two are faculty members at Hahnemann Medical College, and Dr. Berkowitz is associated with the Albert Einstein and Sidney Hillman Medical Centers.

Twenty-five patients suspected of having pancreatic cancer were given both Orinase Diagnostic and a 3-hour oral GTT. Responses to Orinase Diagnostic were diabetic in 13 (72 per cent) of the 18 patients in whom suspected cancer of the pancreas was confirmed at surgery. Responses to the glucose tolerance test were abnormal in 11 (61 per cent) of the 18, the physicians reported in the February, 1962, AMERICAN JOURNAL OF THE MEDICAL SCIENCES. Responses to both Orinase Diagnostic and glucose tolerance tests were normal in seven patients who had no evidence of pancreatic disease at surgery.

"During the latter part of the study, we actually used an abnormal intravenous tolbutamide response as an indication to explore two patients with indefinite complaints and questionable physical findings. In both a pancreatic carcinoma was found," the clinicians said. "From a clinical point of view, the intravenous tolbutamide test promises to be a useful laboratory aid in the patient with vague complaints in whom the diagnosis of pancreatic malignancy is being considered," they added.

THE DOCTOR'S BUSINESS

The Market

HOWARD D. BAKER
Waterloo

From recent market activity, it appears that investors are still very jittery. After several stormy sessions over the past few weeks, most top-rated stocks are currently selling at 1961 lows. Steels and autos were prime targets for selling, and such stalwarts as I.B.M. and AT&T were very active and volatile. Few industries have escaped unscathed, however.

There were no particular economic developments to account for the market action. Most of the drop is attributed to a general uneasiness, among investors, over the fact that growth stocks have long been selling at extremely high price-to-earnings multiples but the Administration's "get tough" policy and in particular, its recent crackdown on steel prices undoubtedly contributed measurably to the change in investor attitude.

Although today's market is being ruled primarily by emotion, rather than by economic fundamentals, economics generally have the final say in the long run. With the gross national product, industrial production, corporate and personal income and industrial capital spending all at record levels, the "fundamental" economics of investing are excellent, and are likely to continue so throughout 1962.

Though the major portion of the present downward reaction is felt to be over, further irregularities will probably follow. This is not generally felt to indicate the beginning of an extended bear market, and investment economists and analysts generally look for a substantial market recovery in the near future.

One of the emotional factors that has contributed to the recent heavy selling is the tendency to "follow the pack" out of fright. In consequence, many investors are being stampeded right out of the market, with resultant heavy losses. This is especially unfortunate in those cases where the portfolios were of high quality. Many of these stampeded sellers sold at one day's low, only to find that the same securities recovered partially and were selling at substantially higher prices 24 hours later.

After the reactions of the past two weeks, most counsellors and investment services are advising a resumption of selective buying by those investors who are in a favorable cash position. If selectivity is used, many attractive bargains exist. There seems to have been a definite rebirth of sound investment principles which stress earnings, yield, price-to-earnings ratios, and close scrutiny of a company's past history and performance. The day of the "glamor issue" has at least temporarily ended, and we shall probably see a return to a greater degree of sanity among both buyers and sellers.

Finally, the recent market has confirmed our long-standing opposition to margin, or credit, purchases of securities. Many cash investors realized "paper losses," but the sophisticated investor has accepted this as inevitable. However, the debtor investor suffered severely in the recent market because of his lack of control over his destiny. The cash investor could weather the storm and hope to recover, but many margin and credit investors, applying so-called "leverage," were "leveraged" right out of the market at its bottom, with no means of recovering on subsequent market rises. Many such traders lost tens of thousands of dollars in one day—thousands which they might have recovered on the next day, but for the fact that they had been closed out of the market completely when their equity reached a point near their margin liability.

Recent market activity has been all the way from unfortunate to disastrous, but many lessons have been learned which should make wiser investors of all but the most foolish, and should have a tendency to place securities trading on a much higher plane in the future.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

Doctors of Medicine and Some Osteopaths in Iowa Will Cooperate in Providing Care to Patients

The joint committee of the Iowa Medical Society and the Iowa Society of Osteopathic Physicians and Surgeons, at a meeting held on July 26, 1962, agreed upon the procedure by which individuals licensed to practice osteopathic medicine and surgery in this state may qualify to consult with doctors of medicine regarding the diagnostic and treatment problems of their patients. The plan implements the joint announcement which George H. Scanlon, M.D., of Iowa City, president of Iowa Medical Society, and Mark Sluss, D.O., of Lenox, president of Iowa Society of Osteopathic Physicians and Surgeons, made to the press on June 17 of this year.

Throughout nearly a century, the Code of Ethics of the American Medical Association has permitted doctors of medicine to share their professional responsibilities only with individuals who confine their activities to the practice of scientific medicine and observe ethics comparable with those set forth in the AMA Code. The term "scientific medicine," in this context, has always been interpreted as excluding all unprovable theories about the functionings of the human body both in health and in disease, and about treatment methods.

MEDICINE WELCOMES THE CHANGES THAT ARE OCCURRING IN OSTEOPATHY

Gradually, over the past few decades, the osteopathic colleges have extended their courses of study, have been using more and more of the standard medical school textbooks, and have de-emphasized the teachings of Andrew Taylor Still. Now, a year of internship and some additional instruction are being required of candidates for the designation "osteopathic physician and surgeon."

The AMA House of Delegates took note of these developments in June, 1961, when it adopted a report which said, in part, "Recognition should be given to the transition presently occurring in osteopathy, which is evidence of an attempt by a significant number of these practicing osteopathic medicine to give their patients scientific medical care. This transition should be encouraged so that the evolutionary process can be expedited. Policy should now be applied at state level according to the facts as they exist."

Plans resembling Iowa's, for facilitating professional relationships between doctors of medicine and certain selected osteopathic physicians, have already been adopted in Colorado, Ohio, Missouri, Kansas, New Jersey and Delaware. In a radically different arrangement, 2,000 osteopathic physicians have been granted the degree of doctor of medicine by the newly-approved California College of Medicine, which was formerly the Los Angeles College of Osteopathic Physicians and Surgeons.

THE IOWA ENROLLMENT PROCEDURE

Of the 465 osteopaths presently licensed in Iowa, 123 are licensed as osteopathic physicians and surgeons. Under the system that is to take effect immediately, the Iowa Society of Osteopathic Physicians and Surgeons will invite its 123 members

who hold the combined licenses to apply for enrollment as practitioners with whom doctors of medicine may cooperate professionally, and will send them copies of an application blank. The data that are to be reported on that form will constitute no more than the usual professional training information, but in signing his name the applicant will affirm his acceptance of the AMA Code of Ethics.

The completed forms will be sent to the headquarters office of the Iowa Medical Society, and from there they will be forwarded to the medical societies in the counties where the applicants practice.

Each county medical society will be asked to report its approval or disapproval of every applicant whose papers it receives.

Next, the MD/DO Liaison Committee will review each application, together with the county medical society's recommendation regarding it. The Committee may also conduct a hearing with regard to the applicant, if one seems advisable.

Finally, the Judicial Council of the Iowa Medical Society will act upon the applications referred to it by the MD/DO Liaison Committee. The Council's procedure will be much the same as that which it follows in considering, and accepting or rejecting, applications from doctors of medicine for membership in the Iowa Medical Society.

TERMINATION OF ENROLLMENT

In case there may be a need, sometime, for withdrawing this recognition, a procedure for revocation of enrollment has also been agreed upon. When a complaint has been made that an individual osteopathic physician was mistakenly accepted, or that he no longer limits his activities to the practice of scientific medicine and/or no longer observes medical ethics, the MD/DO Liaison Committee will investigate the allegations, conducting a hearing if one is requested, and may recommend de-listing. Again, the final decision will be that of the IMS Judicial Council.

THE SIGNIFICANCE OF THESE AGREEMENTS

The American Medical Association and its constituent state and county medical societies, ever since their establishment in the mid-nineteenth century, have endeavored to protect the health of the American people by encouraging scientific research, by testing and evaluating new drugs and other therapeutic devices, by publishing scientific journals and conducting scientific meetings for physicians, and by helping to improve medical schools and hospitals. In addition—and also in the public interest—the AMA and the state and county medical societies have constantly worked to upgrade the educational standards that practitioners are required to meet.

Thus, doctors of medicine are glad that the Iowa Society of Osteopathic Physicians and Surgeons is sponsoring postgraduate courses at the Des Moines College of Osteopathy, so that larger numbers of Iowa osteopathic physicians may have training more closely comparable with that possessed by M.D.'s. Sometime in the not too distant future, it is probable that a majority of Iowa D.O.'s may be eligible for the accreditation procedure which has just been described.

Members of the Iowa Medical Society appreciate the cooperation that the osteopathic physicians and surgeons are giving them, by participating in this accreditation program. It should be apparent that, by cooperating in this project, the osteopathic physicians and surgeons join the doctors of medicine in approving the length and type of education that colleges of medicine offer to their students, and that they join doctors of medicine in disapproving all theories regarding health and disease for which no scientific proofs can be found.

In addition, it should be evident from this joint action that osteopathic physicians and surgeons join doctors of medicine in urging that chiropractors be refused any enlargement of their present scope of practice until they abandon the unprovable ones of their theories.

Iowa Association of Medical Assistants

In-Service Workshop at Iowa City September 23-26

The fourth annual In-Service Workshop for Medical Assistants will be held on the campus of the State University of Iowa under the sponsorship of the Iowa Center for Continuation Study in cooperation with the Iowa Association of Medical Assistants and the Iowa Medical Society.

Registration will start at 4 p.m. on Sunday, September 23, at the Continuation Center. At 6:15 p.m. an orientation dinner will be served at Bill Zuber's Restaurant in Homestead, one of the Amana Colonies.

Monday, September 24

8:30 A.M. WELCOME—Dr. W. D. Coder, Coordinator of Conferences, Extension Division, State University of Iowa
"Human Behaviour and Its Causes: Why Adults Behave as They Do"—Dr. J. J. Flagler, Bureau of Labor and Management, S.U.I.

1:15 P.M. "Child Psychology: Why Children Behave as They Do"—Dr. Ralph Ojeman, Child Welfare Research Station, S.U.I.

Tuesday, September 25

8:30 A.M. "The Importance of Proper English Usage" —Dr. Coder

10:00 A.M. "An Introduction to Medical Terminology" —Dr. Coder

1:15 P.M. "Business Letters"—Dr. C. P. Casady, Department of Office Management, S.U.I.

3:00 P.M. "Reception Techniques and Appointment Making"—Miss Edith Ennis, Business and Economics Research Dept., S.U.I.

Wednesday, September 26

8:30 A.M. "Legal Problems in the Physician's Office" —Prof. Sam Fahr, College of Law, S.U.I.

1:15 P.M. "Proper Use of the Telephone"—Northwestern Bell Telephone Company

The fee for this course is $35.00, which pays for housing at the Iowa Center for three nights beginning Sunday, September 23; breakfasts Monday through Wednesday morning; Sunday night orientation dinner at Bill Zuber's; mid-morning and mid-afternoon coffee breaks; all instructional materials and an attendance certificate.

Enrollment is limited to the first 50 applicants, and enrollment is NOT LIMITED to IAMA members. Fliers for this course will be mailed to IAMA members and to members of the Iowa Medical Society. Full information regarding registration will be given in the flier.

On Monday evening, the Iowa City Medical Assistants will take registrants to three medical offices for tours of their facilities to show various types of filing procedures, bookkeeping and accounting equipment, and office arrangements.

The registrants are invited to attend the dinner meeting, on Tuesday evening, of the Iowa City District Association of Medical Assistants, to be held at the Mayflower Inn. Local medical advisors and their wives will be guests, and entertainment will be provided by the Community Players of Iowa City.

Much will be gained by an medical assistant attending this In-Service Workshop. Classes are conducted by S.U.I. faculty members, and discussion periods are to follow all classes. These have been most profitable because of the exchange of ideas and information that they facilitate. One of the registrants at an earlier Workshop was heard to exclaim, "I didn't realize there was so much I could learn about the work I had been doing for 10 years, and about how I could improve myself!"
PLAN NOW TO ATTEND—REGISTER EARLY

—HELEN G. HUGHES

AMA Issues Revised First Aid Manual

The most up-to-date compilation of do's and don'ts for handling the more common variety of medical emergencies was issued recently by the AMA. The 48-page pocket-size first aid manual, which succeeds an earlier one published by the AMA in 1952, "is a digest of the best knowledge available on the subject at this time," said Dr. Raymond L. White, director of the Division of Environmental Medicine. The new manual, prepared by the Council on Occupational Health and the Department of Health Education, includes recommendations made by physicians who, by the nature of their work, are most often confronted with such emergencies.

Among the newer first aid concepts recommended and illustrated are techniques for the control of severe bleeding and artificial respiration. Among other subjects discussed are shock, transporting the wounded, epileptic seizures, massive wounds of the body, poisoning, burns, sprains, strains, and special wounds. One section lists emergency first aid supplies, most of which can be found in the average household. Included are only three "medicines"—mild soap, baking soda and table salt.

Project More!

The American Academy of General Practice, like many individuals and other organizations, has realized the need for graduating more physicians. The present ratio of about 132 doctors to each 100,000 population is heading for a decline. The Bane Report, made for the U. S. Public Health Service, calls the present ratio "a minimum essential to protect the health of the people of the United States." This report also states, on the basis of the present output of our medical schools and their plans for expansion, that this ratio seems certain to be approximately 130 in 1970 and 126 by 1975. This decrease will be largely due to increases in our population.

The AAGP decided to do something about this matter and has done it. Two pilot studies by the AAGP, called PROJECT MORE, were set up during the fall of 1961, one at Omaha, Nebraska, and the other at Binghamton, New York. A report of these studies was made at the Annual Scientific Assembly at Las Vegas in April, 1962. The physicians who worked with these pilot programs stated that they, themselves, became more enthused as the program progressed, first, because of the cooperation by all agencies. These agencies realized that something positive was being done about acquainting high school students with the profession of medicine. Secondly, they were impressed by the manner in which the program was received by the students and by their interest in PROJECT MORE.

How PROJECT MORE was organized, how it was promoted and how it operated will be briefly outlined. First, an Academy member was selected in each of the two cities to be a task force coordinator and to take responsibility for the coordination and management of the project. The coordinator then selected a task force to serve the high schools in his city. It is interesting that in Binghamton the task force consisted of 11 physicians, including the coordinator, to serve four high schools. In Omaha, there were 18 physicians, including the coordinator, to serve eight high schools.

After establishing a task force, the next step was to get authorities to approve such a project in their schools. It is here that the project had to be explained in detail with emphasis on the fact that it was designed to benefit medicine, to serve the career aspirations of youth, and indirectly to protect the public, since American medicine faces a growing shortage of physicians. Without the approval by the school authorities, PROJECT MORE could not be conducted.

After securing approval by the school authorities the next step was to gain the consent of the local county medical society for the American Academy of General Practice to sponsor PROJECT MORE. Next came arrangements for press publicity. Then various civic organizations were asked to lend their support. These organizations carry great responsibility for the commercial welfare of the community and are of great value in promoting civic projects. With the cumulative support of the community now growing, further support by the press, radio and television stations had to be secured, for greater promotion of the project.

City officials couldn't be neglected. They were briefed on the project, and their municipal stamp of approval was sought. All individuals of the community who deal with the public are somewhat jealous of their prerogatives, as they should be, and any community-wide project is better served if all of these people are kept thoroughly informed.

Timing in the organization and development of the project is of uppermost importance, for if a lag occurs, community interest lags. As with most other projects, the organization and planning takes most of the time. The first contact with the students was for about 45 minutes of a school assembly. An initial talk was given, and a film about a career in medicine shown. At that assembly, those students who were interested were asked to sign a card indicating their desire to participate in PROJECT MORE. The second, third and fourth meetings with the students were held after school, lasting about one hour and spaced about one week apart. These meetings were called Ars Medica No. 1, Ars Medica No. 2 and Ars Medica No. 3. Ars Medica No. 1 was actually a short history of medicine with time for questions at the end. Ars Medica No. 2 was a discussion about medical education, consisting of facts and fantasies, with time set aside for questions at the end. Ars Medica No. 3 consisted of a tour of a hospital. Arrangements, of course, already had been made with the hospital administration for such a tour.

The final contact with the young people was a "student preceptorship" whereby a direct personal contact, one-to-one, between doctor and student was achieved. The doctor made arrangements with

the student's family to keep the youngster with him for a complete day. The preceptor undertook to acquaint the preceptee with as many of the facets of his daily practice as possible. It is the doctor's interest in the project and in the student that forms a vital factor in the student's reception of PROJECT MORE. The followup of a preceptor's interest in his preceptee even after high school was left to the preceptor's discretion, but a follow-up was encouraged.

This, briefly, is how PROJECT MORE was carried out in Omaha and Binghamton. It is hoped that the various state chapters of AAGP will have enough enthusiasm for PROJECT MORE to promote it in their own areas.

New Court Rulings Threaten MD's

MEDICAL WORLD NEWS, in its issue for June 22, summarized an article from the STANFORD LAW REVIEW in which Dr. David S. Rubsamen, a San Francisco doctor-lawyer, maintained that some courts are showing an increasing tendency to blame physicians for rare and unpredictable accidents. Especially in California, he said, they are setting precedents that help to destroy the original intent of the doctrine of *res ipsa loquitur* ("the thing speaks for itself").

As first applied, Dr. Rubsamen said, the doctrine served a valid purpose. In cases where the patient couldn't get a medical expert to testify, or couldn't produce enough other evidence of negligence, a suit could be thrown out of court before reaching the jury—even if the doctor didn't say a word in his own defense. *Res ipsa loquitur* was applied to give the plaintiff a better chance; it supplied the circumstantial evidence needed to get the case to a jury. But it didn't imply guilt, and if a jury wasn't convinced of negligence, it could still decide in favor of the doctor, even if he didn't explain how the accident had happened.

But all that has changed, Dr. Rubsamen said: "By deciding that *res ipsa loquitur* raises a 'mandatory' inference of guilt, the California courts are putting the doctor on the spot. Even though he may have no better idea than his patient about why a particular thing happened, he must now produce some kind of explanation. He must defend himself if he can."

A 1947 ruling of the California Supreme Court, in Dr. Rubsamen's opinion, is typical of current judicial thinking in that state: "The defendant will not be held blameless," the court proclaimed, "except on supplying a satisfactory explanation for the accident or by showing it could not have happened for want of proper care."

As an example, Dr. Rubsamen cites the Wolfsmith case. Mrs. Wolfsmith suffered a thrombophlebitis and ulceration following injection of a local anesthetic into a small superficial vein. After a year and a half—and 55 days of hospitalization—the patient continued to have definite symptoms resulting from the original injury. "In reversing a non-suit," Dr. Rubsamen declared, "the court stated that 'it is a matter of common knowledge among laymen that injections in the arm, as well as other portions of the body, do not ordinarily cause trouble unless unskillfully done or unless there is something wrong with the serum.'"

"Under California law," he continued, "laymen are deciding these issues right now. And this is happening in spite of universal recognition among MD's that unpredictable reactions can follow many kinds of injection procedures—no matter how skillful the physician may be."

Dr. Rubsamen wants the courts to return *res ipsa loquitur* to its original role, and to apply the doctrine only when the doctor is obviously at fault: when a foreign body has been left in the patient or when a surgical patient is injured at a site far removed from the incision. "Because of the risk involved in most medical procedures, the significance of other rare accidents should be left to the judgment of other medical experts—not laymen. With medicine's increasing interest in supplying expert witness panels, there should be no problem in applying *res ipsa loquitur* where it is appropriate."

AMA Council Opposes Candy, Soft Drinks in School Lunchrooms

The Council on Foods and Nutrition of the American Medical Association announced on July 1 that it is opposed to the sale and distribution of confections and carbonated beverages in school lunchrooms. The nutritional benefit of candy and soft drinks is "greatly inferior" to that of milk, fruit and other foods, the Council said.

Following is the full Council statement:

"One of the functions of a school lunch program is to provide training in sound food habits. The sale of foods, confections, and beverages in lunchrooms, recreation rooms, and other school facilities influences directly the food habits of the students. Every effort should be extended to encourage students to adopt and enjoy good food habits.

"The availability of confections and carbonated beverages on school premises may tempt children to spend lunch money for them and lead to poor food habits. Their high energy value and continual availability are likely to affect children's appetites for regular meals. Expenditures for carbonated beverages and most confections yield a nutritional return greatly inferior to that from milk, fruit, and other foods included in the basic food groups.

"When given a choice between carbonated beverages and milk or between candy and fruit, a child may choose the less nutritious.

"In view of these considerations, the Council on Foods and Nutrition is particularly opposed to the sale and distribution of confections and carbonated beverages in school lunchrooms."

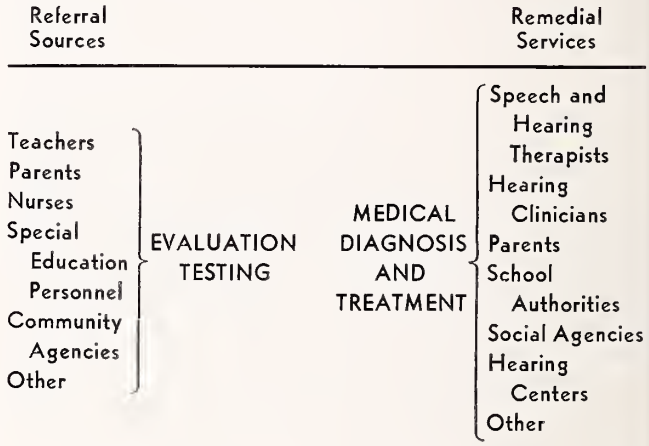
Hearing Conservation

The Role of the Family Physician

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, *consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.*

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of representatives from the section on otolaryngology of the Iowa Medical Society, from the Academy of Otolaryngology and Ophthalmology, from the American Academy of General Practice, from the State Department of Health, from the Department of Otolaryngology and the Department of Speech Pathology and Audiology at S.U.I., from the Division of Special Education of the State Department of Public Instruction, from the Iowa School for the Deaf, and from the Des Moines Chapter of the American Hearing Society.*



A hearing conservation program consisting of (1) Referral Sources, (2) Evalution Testing, (3) Medical Diagnosis and Treatment, and (4) Remedial Services actually forms a four-link chain. Malfunction of any of these links naturally causes a loss and waste of the function of the other three.

In this structure, the family physician is in a position where the success or failure of the program will depend upon his cooperation and knowledge. His situation is unique in this program, since his duties cover a wide variety of fields of human illness and disability. The other participants in this program have more specialized interests in the separate field of hearing loss. It is readily evident that patients referred to the family physician must be properly and expeditiously managed, so that they may avail themselves of all possible help and so that the personnel concerned with detection and remedial services can be utilized to the utmost.

The functions of the family physician in this program can be outlined as follows:

(A) Diagnosing and treating remediable hearing loss

(B) Referring to an otolaryngologist the cases needing specialized diagnostic and therapeutic measures

(C) Acting as a "referral source" himself, by detecting cases with hearing loss

(D) Referring patients to facilities capable of determining which remedial services can be of benefit to particular individuals.

Items A, B and C, above, are obvious functions of the family physician. Item D refers to those

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Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City.

Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

cases where the facilities for medical diagnosis and treatment have been utilized to the greatest possible extent, but where there is still a hearing or a hearing-and-speech problem of such a degree that some additional help is needed. At this point, it is the responsibility of either the otolaryngologist or the family physician to guide the patient to a facility qualified to determine which special services will be of value. Many times, because of the distance the patient lives from the specialist, this will become a necessary function of the family physician. In a later issue of this JOURNAL, a listing of these facilities will be published. In the meantime, interested physicians can obtain copies of the list by writing to the secretary of the Committee on the Conservation of Hearing for the State of Iowa, Division of Special Education, State Office Building, Des Moines 19, for the leaflet entitled "Sources of Help in Iowa."

The success of the entire hearing conservation program may depend upon the function of this vital link in the referral pattern. It is also at this point that the hearing conservation committee will strive to familiarize the physician with the steps necessary in helping the individual.

This space in future issues of the JOURNAL will be used for discussions of the various aspects of hearing problems. It is planned that these communications will be of practical value to family physicians and to specialists as well. In this way, it is hoped that the entire hearing conservation program will become a coordinated, smoothly-functioning means of helping hard-of-hearing Iowans to become happier, more productive citizens.

Most S.U.I. Nursing Graduates Use Their Training

All but about two per cent of the nurses who have graduated from The State University of Iowa since the first diploma was awarded in 1891 have practiced their profession, a survery of S.U.I. nursing alumnae indicates. At least as far as graduates of the S.U.I. College of Nursing are concerned, this finding refutes the charge that money spent on higher education of women is largely wasted because they never practice their profession. Ruth Becker, former faculty member of the college, compiled the survey from answers to questionnaires sent in 1961, to all S.U.I. nursing alumnae. The questionnaire was developed under the direction of Dean Mary K. Mullane of the College.

Ninety-eight per cent of the 1,296 graduates who answered the questionnaire (41.8 per cent of the total who had completed S.U.I.'s basic programs) had worked as nurses. Among those who graduated between 1907 and 1935, 57.4 per cent had worked 10 years or more, and many in that group had worked 20, 30 or 40 years. Almost 50 per cent of those graduated from 1926 through 1940 were working at the time they answered the questionnaire. Of graduates in classes between 1936 and 1940, just under 50 per cent had worked at least 10 years, and many had worked considerably longer. Thirty-four per cent of the graduates from 1941-45 had worked ten years or more. Of those graduated after 1950, 25 per cent have held jobs constantly since graduation.

The work pattern of S.U.I. nursing graduates is similar to that of college women as a whole in the United States, Mrs. Becker concluded. After graduation, they work until they marry, or even until their first children are born, and many return to positions in nursing as their children start to school.

Reports of the Bureau of the Census indicate that the average American woman will work 18 to 25 years of her life and that college graduates are much more likely to work than are women of comparable age with less education.

Findings revealed by the questionnaire also reflect a trend in the type of employment for S.U.I. graduates similar to that for nurses in the country as a whole. A relatively large number of early S.U.I. graduates practiced private duty nursing, but most of the later graduates are in hospital positions or with public health agencies or other institutions.

A somewhat higher percentage of S.U.I. nursing graduates have stayed in Iowa than of the total of S.U.I. alumni, the questionnaire revealed. Forty-two per cent of the nurses who responded in the survey were living in Iowa in 1961. For the same year, 39.6 of all S.U.I. alumni were in the state. A slightly higher percentage of the S.U.I. nurses who had married were living in Iowa than the proportion of their single classmates who had stayed there. Of the nurses who answered the questionnaire, 13.3 per cent were unmarried.

Mrs. Becker also found in her survey that the chances of a nurse's coming back for advanced study diminished sharply after she has been out of school three years. "Hence it appears that the nurse with potential for earning an advanced degree should be encouraged to go on to school within three years after completing her basic education," she concludes. Of the nurses responding who had received bachelor's degrees at S.U.I., 6.2 per cent had gone on to receive master's degrees, while 1.8 per cent of the nursing diploma graduates held the higher degree. Less than two per cent of the 504,000 professional nurses employed in the United States in 1960 held master's degrees.

The survey concludes that the numbers taking advanced work to prepare for positions as nursing educators fall far short of meeting today's needs for faculty members in all kinds of nursing-education programs.

Case Studies

Fibroma of the Ovary in a Five-Year-Old Child

HOMER L. SKINNER, M.D., Carroll
C. A. JOHNSON, M.D., Coon Rapids
ALLEN D. ANNEBERG, M.D., Carroll

OVARIAN TUMORS are rare in childhood, and those that do occur in the pediatric group are, more often than not, in youngsters between 10 and 13 years of age. Fortunately, the majority of ovarian tumors in children are benign. Of 36 cases of ovarian tumor operated upon at the Hospital for Sick Children, in Toronto, from 1923 to 1958, only five were malignant.[1]

Dargeon, in his book TUMORS OF CHILDHOOD, reported a series of 11 cases of tumor of the ovary occurring in children, none of which was a fibroma.[2] In 1937, Witzberger and Agerty reviewed the literature and found that only 186 cases of ovarian tumor had been reported up to that time. None of these had been fibromas.[3] Gross, in his textbook THE SURGERY OF INFANCY AND CHILDHOOD, reported 13 ovarian neoplasms in children and 12 ovarian cysts in children, but included no fibromas in either list.[4] Perry reported 32 patients 16 years of age or younger who had ovarian neoplasms and were operated upon from 1949 through 1958 at Children's Hospital, in Michigan, and at Harper Hospital. None of the lesions was a fibroma.[5]

CASE REPORT

The report involves a five-year-old girl who entered the hospital complaining of abdominal pain and an abdominal mass. On the afternoon of the day prior to her admission, she had begun to have severe abdominal pain while at school. The pain doubled her up, and her most comfortable position was the knee-chest. She ate a light supper, but vomited early in the evening. She slept fairly well during the night, but the next morning she continued to have pain, and was taken to her family physician. He examined her and noted a large abdominal mass. She was then admitted to St. Anthony's Hospital, in Carroll, on January 19, 1962.

The child's mother had seen her experiencing abdominal pain on some prior occasions, for short periods of time, but said the pain had never caused any particular trouble and seemed to occur only when the child wore tight pants. The girl had had a bowel movement shortly before admission. She had no history of diarrhea or constipation, and there had never been any blood in her stools.

Physical examination showed a well developed and well nourished five-year-old girl in pain. There was a grapefruit-sized mass below the umbilicus and to the right. It was soft, mildly tender and freely movable. The remainder of the examination was within normal limits.

Laboratory studies showed a hemoglobin of 11.8 Gm., a hematocrit of 38 per cent, and a leukocyte count of 17,550/cu. mm., with 71 segmented polymorphonuclear leukocytes, 7 bands, 20 lymphocytes, 1 monocyte and 1 juvenile. A few of the lymphocytes appeared abnormally large. The urine showed a specific gravity of 1.040, 4+ acetone, 3-5 white cells and an occasional red cell. A chest x-ray was normal. A kidney-ureter-bladder study showed that the colon was distended by gas and fecal material, and that there was a mass in the mid-abdomen. A gastrointestinal series after ingestion of oral Hypaque was normal, except for a large mass in the abdomen.

Following the above work-up, the child was taken to surgery, where a grapefruit-sized tumor of the right ovary on a long pedicle was found. The tumor had twisted at least five times on the tube, and was infarcted. On cross section, the ovary was seen to be thick-walled and to contain serosanguineous fluid in a cystic center. The patient's postoperative course was uneventful.

The pathologist described the ovarian tumor as consisting of fibrous connective tissue in which the fibrocytes were rather widely separated from one another. The cells possessed rather uniform pyknotic nuclei. The fibrils were loosely arranged, and the matrix was irregularly suffused with blood. It also contained scattered deposits of cal-

cific material. It showed small areas of cystic degeneration, and a cavity in the center which also seemed to represent a site of cystic degeneration, inasmuch as it had no specialized lining cells.

DISCUSSION

Since benign solid tumors of the ovary are far less common than benign cystic neoplasms, and since fibroma falls into this group, we thought our case would be of interest—particularly so because, in a review of the literature as noted above, we could find no report of a fibroma in a child of our patient's age.

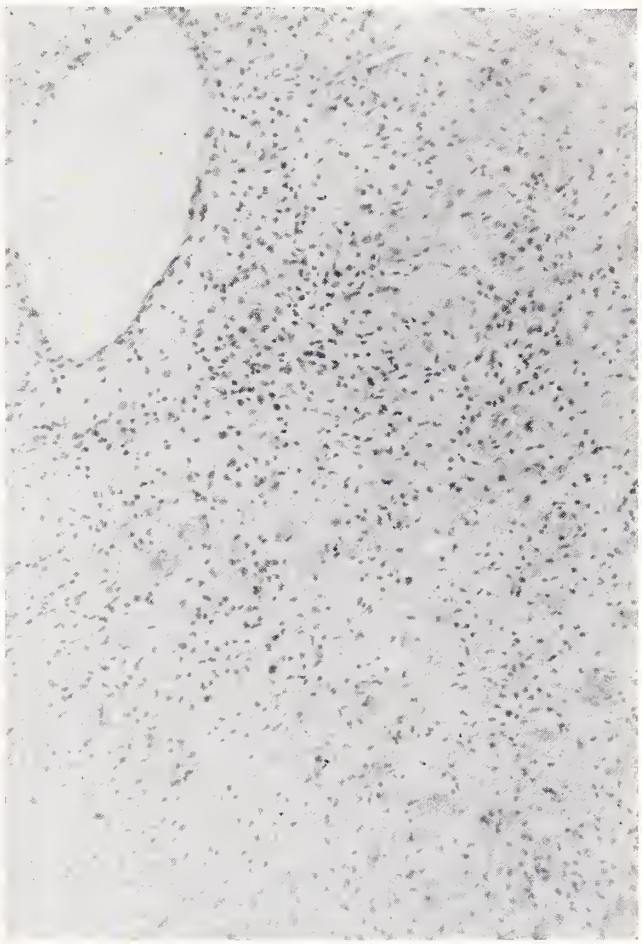
Fibromas generally become very large, and because of their weight and solidity, a twisting of the pedicle often occurs, as it did in this case. The tumor, when large, may show areas of degeneration or cystic cavities of considerable size, such as were present in this case. Meigs has described a syndrome in which hydrothorax and ascites are associated with fibroma of the ovary, but our patient did not have these complications.

SUMMARY

We have reported a fibroma of the ovary measuring 10 cm. in diameter and having a large central degenerated cavity, in a five-year-old child. The patient came to medical attention when the tumor twisted on its pedicle and infarcted. Such a tumor is extremely rare in this child's age group.

REFERENCES

1. Darte, J. M. M.: Ovarian tumors in premenarchal child. Clin. Obst. & Gynec., **3**:187-196, (Mar.) 1960.
2. Dargeon, Harold W.: Tumors of Childhood. New York, Paul B. Hoeber, Inc., 1960.
3. Witzberger, C. M., and Agerty, H. A.: Ovarian tumors in infancy and childhood, with report of case and review of literature. Arch. Pediat., **54**:339-348, (June) 1937.
4. Gross, Robert E.: The Surgery of Infancy and Childhood. Philadelphia, W. B. Saunders Company, 1961.
5. Perry, R. W.: Ovarian tumors in pediatric patient. Harper Hosp. Bull., **19**:209-221, (Nov.-Dec.) 1961.



Photomicrograph of a fibroma of the ovary, measuring 10 cm. in diameter and having a large central degenerated cavity, removed from a five-year-old child.

New Drug Beneficial in Advanced Hodgkin's Cases

Hematologists at the University of Pennsylvania Medical School report beneficial results in treatment of far-advanced cases of Hodgkin's disease with a new oncolytic agent.

Writing in the June, 1962, issue of ANNALS OF INTERNAL MEDICINE, published by The American College of Physicians, John W. Frost, M.D., Manfred I. Goldwein, M.D., and James A. Bryan, M.D., Philadelphia, Pa., describe results in use of vincaleukoblastine on 22 patients with Hodgkin's disease ranging in duration from three months to nine years.

All but two of the patients had been unresponsive to conventional therapy at the time of treatment.

Vincaleukoblastine is described as an alkaloid extracted from a common shrub known as the periwinkle.

According to the report, the physicians obtained "an unequivocally favorable response" in eight of the 22 cases of Hodgkin's disease. Two of three cases of reticulum cell sarcoma showed diminution in tumor mass with little or no effect on the clinical course.

The authors said: "While it would appear that our results with vincaleukoblastine in Hodgkin's disease are less salutary than those obtained with other modes of therapy, it must be emphasized that all patients chosen for treatment had far-advanced disease and all but two of 22 patients had become refractory to conventional forms of therapy."

Eleven patients with other malignancies treated in the same study did not show significant clinical responses.

STATE DEPARTMENT OF HEALTH

Edmund G. Zimmerer
COMMISSIONER

Morbidity Report for Month Of June, 1962

Diseases	1962 June	1962 May	1961 June	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	170	218	94	Hancock, Johnson
Typhoid fever	1	0	0	Des Moines
Smallpox	0	0	0	
Measles	1,002	1,420	892	Entire State
Whooping cough	5	7	9	Clinton, Hancock, Polk, Union
Brucellosis	13	10	17	Clinton, Dubuque, Scott
Chickenpox	100	193	269	Des Moines, Polk, Scott
Meningococcic meningitis	0	0	0	
Mumps	231	262	287	Black Hawk, Clay, Polk, Scott
Poliomyelitis	0	0	0	
Infectious hepatitis	63	101	123	Black Hawk, Des Moines, Jasper, Scott, Woodbury
Rabies in animals	32	24	36	Jackson, Keokuk, Muscatine, O'Brien, Sac, Wayne
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	26	21	31	For the State
Syphilis	101	71	77	For the State
Gonorrhea	141	87	132	For the State
Histoplasmosis	3	1	2	Benton, Dallas, Polk
Food intoxication	48	272	0	Adams, Linn
Meningitis (type unspecified)	0	0	2	
Diphtheria carrier	0	0	0	
Aseptic meningitis	1	0	0	Polk
Salmonellosis	6	5	4	Clinton, Linn, O'Brien, Polk, Washington, Woodbury
Tetanus	1	0	0	Black Hawk
Chancroid	0	0	0	
Encephalitis (type unspecified)	1	1	0	Polk
H. influenzal meningitis	0	0	1	
Amebiasis	2	0	3	Adair, Boone
Shigellosis	3	11	4	Linn, Polk
Influenza	0	4	0	

Rules Change Concerning Scarlet Fever Contacts

Persons exposed to scarlet fever no longer need take preventive antibiotics before returning to school or to work as food handlers or teachers. The rules change reflects physicians' reluctance to give antibiotics to healthy persons, and the fact that scarlet fever can be controlled without isolating the contacts, as long as they remain under medical supervision.

The action was taken by the State Board of Health at its meeting on July 10.

The Medical Self-Help Program in Iowa

In the event of a national disaster, especially a nuclear attack, many American families will be on their own for a period ranging from hours to weeks. They may be isolated in their own homes or shelter, unable to secure the immediate services of a physician. They must be able to care for themselves and for each other.

The American Medical Association's Report on National Emergency Medical Care recognized the probability that in an emergency casualties would far exceed the number to whom the physician could provide direct care, and recommended that people become proficient in first-aid and self-aid procedures. As a result of this recommendation, the Medical Self-Help Program was developed by the Public Health Service and the Office of Defense Mobilization, in cooperation with the American Medical Association's Committee on Disaster Medical Care.

Plans for implementing a pilot Medical Self-Help Training Program in Iowa were formulated by Ray C. Stiles, State Civil Defense Director; M. E. Alberts, M.D., chairman of the Iowa Medical Society's civil defense committee; Paul F. Johnston, State Superintendent of Public Instruction; and Edmund G. Zimmerer, M.D., Commissioner of Public Health. These representatives, after attending a course of instruction at Battle Creek, met with Miss Mattie Brass, director of the Division of Public Health Nursing, to consider how a pilot course might be begun. It was decided that the nurses were not only strategically located, but professionally qualified to carry on the program until

such a time as other teachers might be prepared to take over.

The goal of this state committee, with the advice of the Iowa Interprofessional Association and its member organizations, is to promote action that will eventually result in at least one member of each family being trained in Medical Self-Help within the next five years.

Under the Iowa plan, the Medical Self-Help Training Course, consisting of 12 lessons, is being offered by the State Department of Health through its Division of Public Health Nursing and its six regional offices, located at Manchester, Fort Dodge, Spencer, Council Bluffs, Washington, and Des Moines. The nurse supervisor in each area is guiding plans, assigning teaching kits and supplies for class members, and assisting in locating instructors for the classes. Local physicians are serving as counselors and community training sponsors.

The 12 lessons may be taught in 16 hours, and usually are arranged in eight two-hour sessions. They include: radioactive fallout and shelter; hygiene, sanitation, and vermin control; water and food; shock; bleeding and bandaging; artificial respiration; fractures and splinting; transportation of the injured; burns; nursing care of the sick and injured; infant and child care; and emergency childbirth.

On June 30, 1962, 62 classes were completed and about 1,250 persons received the training. Some of those who were enrolled in the first classes are now organizing classes and instructing others. It is anticipated that many more of those who have had the training will become active in teaching, so that by early fall, when more teaching kits are available, a full-scale program will be operating.

Nurses, physicians, civil defense directors and several lay volunteers have been serving as instructors to launch the program. Active support has been received from county and city civil defense organizations, county medical societies, osteopathic groups, boards of education, nursing organizations, Red Cross, Farm Bureau groups, county extension home economists, as well as other groups and individuals.

Continuing and expanding interest and support will be necessary if the ultimate goal of providing instruction to at least one member of each family in Iowa is reached in five years.

Brucellosis

With the nationwide program of eradication of bovine tuberculosis which has been in progress since World War II, there has been a steady decline in human cases of brucellosis reported in the United States. In Iowa the decrease in human cases has been more irregular, and Iowa cases constitute about 40 per cent of the national total. Cases reported in the past five years are as follows:

CASES OF HUMAN BRUCELLOSIS

Year	Iowa	United States
1957	214	983
1958	283	924
1959	361	892
1960	379	751
1961	219	580

In recent years, the U.S.P.H.S. Communicable Disease Center has collected information from the various state health departments on the probable sources of human cases. Although these facts have not been secured on all of the cases, the available data indicate that swine are responsible for an increasing proportion of human cases (see accompanying table). A similar trend has been observed in Iowa.

PROBABLE SOURCES OF HUMAN BRUCELLOSIS CASES IN THE UNITED STATES, 1957-1960*

Probable Source	1957		1958		1959		1960	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Cattle	170	36.8	98	35.8	127	27.9	41	15.0
Swine	64	13.8	40	14.6	102	22.4	134	49.1
Cattle and Swine	92	20.0	58	21.2	64	14.0	41	15.0
Raw Milk—Family Cow	34	7.3	9	3.3	22	4.9	7	2.6
Raw Milk	40	8.6	15	5.5	56	12.3	18	6.6
Packing House	39	8.4	43	15.7	60	13.4	22	8.1
Rendering Plant	4	.8	1	.4			1	.3
Vaccine Accidents	9	2.0	3	1.0	6	1.3	7	2.6
Sheep and Goats	1	.2	1	.4	3	.7	1	.3
Other	10	2.1	6	2.1	14	3.1	1	.3
Total With Source Stated	463		274		454		273	
Sources Not Stated	174		95		204		95	
TOTAL	637		369		658		368	

* Source: Subcommittee on Public Health, National Brucellosis Committee.

Woman's Auxiliary News

Our President Says—

The National Auxiliary Pre-Convention Schedule for State Presidents included the presentation, reading and discussion of reports of State Auxiliaries, Sunday, June 24, 1962, at 2:30 p.m., in the Pick-Congress Hotel, Chicago, with Mrs. Paul Rauschenbach, first vice-president, presiding. The splendid project report of our immediate past-president, Mrs. Gertrude Kilgore, on the newly established homemaker service in Polk County was well received, and I might add that it was the only report in this category.

The Thirty-ninth Annual Convention of the Woman's Auxiliary to the American Medical Association was held in the Great Hall of the Pick-Congress Hotel, on June 25-27, with Mrs. Harlan English, the national president, presiding. It was a pleasure to serve as a delegate with Mrs. R. F. Nielsen, Cedar Falls, Mrs. Howard G. Ellis, Des Moines, Mrs. Frank L. Poepsel, West Point, and Mrs. George McMillan, Fort Madison. Two alternate delegates, Mrs. D. H. Kast, Des Moines, and Mrs. E. A. Larsen, Centerville, were in attendance, as were two other Iowa Auxiliary members, Mrs. F. P. Ralston, Knoxville, and Mrs. W. B. Chase, Jr., Des Moines. The delegates will write brief summaries of some phases of this wonderful convention for publication in this and in later issues of the WOMAN'S AUXILIARY NEWS.

Please accept my thanks for the privilege of attending the National Auxiliary Convention and for the beautiful corsage I wore to the Past-President's Luncheon and to the reception in honor of Mrs. William Getz Thuss, the national president-elect, which was given by the Medical Association of the State of Alabama and the Woman's Auxiliary to the Alabama Medical Association.

The Post-Convention Conference for all members was held Thursday, June 28, with Mrs. Thuss presiding. Dr. Ernest B. Howard, assistant executive vice-president of the AMA, spoke on "AMA Round-up." Following Dr. Howard's address, the presentation of basic program outlines was given by national committee chairmen. Each committee is to "Aim for Excellence in Achievement," following the theme chosen by Mrs. Thuss for the coming year.

On the second day of the convention, our delegate, Mrs. Janet Ellis, appeared in a very clever skit "This Is How," presented by Mrs. Lawrence A. Rapee, chairman of the Committee on Legislation. We were all very proud of Janet.

—MRS. A. C. RICHMOND
President

Report From the SCI Workshop

On July 9-11, the Thirteenth Annual Public Relations Workshop of the State College of Iowa was held in Cedar Falls. Leaders in farming, labor, education, religion, and professions, came to listen and debate. Time and space will permit only sketchy information about what transpired during the morning and evening sessions, but it was generally concluded, from the discussions, that the friends of education and community leaders must concern themselves about the new look in our schools.

An explosion of knowledge has made it necessary to teach children how to learn. New teaching processes are being devised, and it seems likely they will prove to have great merit. The focus at the Workshop was particularly on mathematics and science. Textbooks in these subjects are being revised, and the day is not far off when traditional mathematics books will be collectors' items. It is not a question of *whether* our schools will accept the new methods or not. Rather, the question is only *how soon*. The longer a school delays, the more difficult a time it will have in catching up.

The major concern at the public relations workshop was how we should tell the story of these new developments. How do we arouse school administrators and lay people to take action? Many suggestions were forthcoming.

1. *The demonstration approach.* Explain what is happening wherever or whenever you have an audience. Present it at PTA meetings, service clubs, etc.

2. *Bulletins.* These are available from the NEA in Washington, D. C.

3. *Newspaper articles.* We were fortunate in having editors attending the daily sessions who have already printed very fine explanatory editorials.

4. *Adult classes in the "new" mathematics.*

One "workshopper" brought out the fact that the state of Iowa has invested nearly $20,000 in every student who graduates from medical school.

This alone shows why our profession owes a debt of gratitude to our public schools. We need to listen patiently to the problems with which school officials are struggling, serve on school boards, inform ourselves about this "new look" in education, and use any influence we have to bring progress in our communities. Let us help them evaluate and interpret the changes.

—MRS. R. F. NIELSEN

Auxiliary President Urges Members To Aim High

Physicians' wives must broaden the scope of their education and understanding if they are to know the satisfaction of meeting responsibilities to families, to communities and to the future, the new president of the Woman's Auxiliary to the American Medical Association said in her inaugural address.

In assuming the presidency, Mrs. William G. Thuss, Birmingham, Ala., urged support from all members for medical education, promotion of safety education for all age groups, mental health, physical fitness programs in schools, campaigns against quackery, recruitment of outstanding young people into medical careers, rural health and international health activities.

Mrs. Thuss said that in its first 40 years, the Auxiliary has accomplished a great deal, and as a result of the "changed attitude of medical societies and the AMA . . . we have become full partners and allies of our husbands."

Doctors' wives must continue to "aim for excellence in achievement" during the year ahead, she said.

Mrs. Thuss succeeds Mrs. Harlan English, Danville, Ill. The new president-elect is Mrs. C. Rodney Stoltz, Watertown, S. D.

Other Auxiliary officers installed at the 39th Annual Convention, in Chicago, include: Mrs. Harry F. Pohlmann, Middletown, N. Y., first vice president; regional vice-presidents—Mrs. Morton Arnold, Windham Center, Conn., eastern; Mrs. Richard A. Sutter, St. Louis, Mo., north central; Mrs. Robert D. Croom, Jr., Maxton, N. C., southern; and Mrs. G. Prentiss Lee, Portland, Ore., western; Mrs. William H. Evans, Youngstown, Ohio, constitutional secretary; and Mrs. C. R. Pearson, Baraboo, Wis., treasurer.

An Auxiliary check for $244,172 was presented to the AMA Education and Research Foundation for the nation's 86 medical schools at a luncheon honoring national past presidents. For the third time in a row, the "Ethel Gastineau Trophy" was awarded to the Woman's Auxiliary to the Tennessee State Medical Association in recognition of outstanding service to this project.

AMA-ERF awards of merit were presented to the National Auxiliary, and to Mrs. Harlan English; Mrs. James L. McCartney, Garden City, N. Y., 1961-62 AMEF chairman; Woman's Auxiliary to the Ohio State Medical Association for raising the largest amount of money; and Woman's Auxiliary to the Nevada State Medical Association for making the largest per capita contribution. The county Auxiliaries cited for outstanding efforts were: Yuma, Ariz.; Tuscarawas, Ohio; Allen, Ohio; Vanderburg-Southwestern, Ind.; Hamilton, Tenn.; and Los Angeles, Calif.

Highlights of the convention:

- Dr. Leonard Larson, then AMA president, praised members for their work in "fighting to preserve the finest form of medicine in the world today."

- Dr. Theodore R. Van Dellen, medical editor, CHICAGO TRIBUNE, cautioned physicians' wives to "take care of their husbands, because they're more frail and a better investment than stocks and bonds."

- Dr. Fredrick J. Stare, chairman, department of nutrition, Harvard University School of Public Health, Boston, said that "calories *do* count," and the best way to assure that the family gets the proper amounts of all the known nutrients is to "eat a variety of foods and don't eat or drink too many calories."

- Dr. Edward R. Annis, chairman, AMA Speaker's Bureau, Miami, said it was up to every doctor's wife to remind her husband that he, as a citizen, has a personal responsibility to spread the true facts about the profession. The Constitution, he said, guarantees the pursuit of happiness, "but you have to catch up with it yourself," and not leave the job to someone else.

Business sessions were devoted to state and national reports, discussions and speeches by medical leaders and AMA staff personnel.

Registration for the meeting totalled 1,191.

Art Exhibit Winners

Again, an air of enthusiasm pervaded the art exhibit for doctors and their wives, held at the auditorium during state convention. There were 43 entries, and the winners were as follows:

Class 1—oils
"Spring"—Dorothy Saar, Keokuk
Untitled—Dr. C. L. Burr, Des Moines
"Still Life"—Danuta Kosieradzki, Marshalltown

Class 2—Water colors
Untitled—Dr. C. L. Burr, Des Moines
"Naar, Yugoslavia"—Dr. F. O. W. Voigt, Oskaloosa
"Still Life"—Mary N. Weresh, Atlantic

Class 3—Sculpture
Wood carvings by Dr. Paul Skelley, Dubuque
"Good Shepherd"
"Dog Patch"
"Berlin Wall"

Class 4—Drawing and Graphic Art
Ink drawings by Dr. Donald F. McBride
"Farm Island"
"River Whorls"
"Period Piece"

It is not too early to start thinking about the exhibit for next year. As you pursue your hobby, bear in mind that we shall be wanting the best of your work for next year's exhibit. We are especially anxious to have more ink drawings and sculptures to show.

A "thank you" to all of those who participated in our project this year. It served as "a pause that refreshes" at the convention.

Highway Driving Deaths Increase Among Women

Latest national figures from the National Safety Council show that although men each year are involved in fewer and fewer fatal accidents per hundred thousand miles, women drivers are being involved in more and more.

In attempting to find out why, Council researchers are studying the driving habits of women and the places where their accidents occur. They know that the majority of women are skillful urban drivers, accustomed to short trip driving to schools and stores. And they do well in heavy city traffic. But on long trips, the man of the house has traditionally taken the wheel. Now, with an increase in the number of expressways and a big jump in the number of women drivers, more women are driving on the high-speed highways. Since most of them have had far less speed-driving experience, they sometimes miscalculate when facing lightning highway decisions.

George Gibson, Dodge chief engineer, says cars respond best to people who know how to drive them well and who know the rules of the road. He makes the following suggestions which may be helpful to women who plan to drive for long stretches during the summer vacation time:

1. Adjust to weather conditions. At 60 miles an hour, a car needs 300 feet for a dry-road stop. On wet pavement, the car will travel 541 feet before stopping, and on ice it will travel 1,764 feet—or more than one-quarter of a mile.

2. Many fatal 1961 crashes occurred when women's cars went into skids at high speeds. If you begin to skid, Gibson says, don't slam on the brakes; instead quickly pump the brakes to reduce your speed.

3. Driving at 50 miles an hour, you should be 100 feet behind the car ahead. Add 20 feet more for every additional 10 miles-an-hour. Your distance judgment can't be based on your slower, city driving.

4. Every year many cars driven by women and carrying children are hit by railroad trains. This fact illustrates the second most common driving error among women—failure to look in both directions at intersections where there are no traffic controls. The first error: Failure to drive with both hands.

5. Use low-beam headlights when cars are approaching at night. The best dimming distance is between 1,000 and 1,500 feet of an oncoming vehicle. Don't stare into the headlights or strain to see the center line. Instead, watch the right side of the road.

6. Your instincts tell you to swerve away from any impediment along the side of the road. Don't . . . since swerving across the center line is the chief cause of head-on crashes. Always slow down when approaching the crest of a hill.

7. On expressways and turnpikes, don't straddle or jump lanes. Don't poke behind traffic, and if you miss an exit, don't suddenly swerve over or attempt to back up. Keep on to the next exit. If forced to stop on the shoulder, don't get out of the car from the side next to the highway.

8. Every family car should have safety belts. Usually it is the woman in the family who forces the issue in getting them.

9. At dusk, reduce your speed 10 miles an hour and put on your lights. The most crucial accident hours are between 4 and 8 p.m.

10. Don't drive beyond your fatigue point or your family's. Women with children in the car tend to be distracted when the children begin to fuss. Statistics show that 13 to 15 per cent of all turnpike accidents are caused by loss of sleep. And it's probably a factor in an even higher percentage of the fatal accidents.

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REFERENCES: (1) Roseman, E.: *Neurology* 11:912, 1961. (2) Bray, P. F.: *Pediatrics* 23:151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: *M. Clin. North America* 42:317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield,. Ill., Charles C Thomas, 1954, p. 190. (6) *Ibid.*: *Postgrad. Med.* 20:584, 1956. (7) Merritt, H. H.: *Brit. M. J.* 1:666, 1958. (8) Carter, C. H.: *Arch. Neurol. & Psychiat.* 79:136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.

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Scientific Articles

Why We Succeed: Homeostatic Mechanisms

JOHN D. CRAWFORD, M.D.
Boston, Massachusetts

In this golden age of science, we are all too apt to become puffed up by the thought that as physicians, we play the determining role in curing our patients. From time to time, it is well for us to remind ourselves that now, just as in Hippocrates' day, "We dress the wound; God heals it."

My own first lesson in the humility which so well befits the physician was learned early after medical school graduation when I joined Allan Butler and Nathan Talbot at the Massachusetts General Hospital. At that time, they had just published what seemed to me the epitome of sophisticated thinking about parenteral-fluid therapy.[1] In that article, they had spoken of the means by which one could estimate precisely the individual's need for water, glucose, salt and alkali. If these needs were correctly assessed, they emphasized, then one could count on effectively restoring hydration and acid-base balance by infusing specially-concocted mixtures of ingredients, each mixture nicely tailored to meet the individual needs of the particular patient.

Fortunately, only a short while later, Dr. Daniel Darrow published a most provocative report.[2] He noted that in diarrheas and other disturbances leading to dehydration and requiring infusion of parenteral fluids, large potassium losses are incurred. He suggested that this intracellular ion, always maintained at a rather startlingly low value in extracellular fluid, might safely be incorporated into fluids administered by vein.

This suggestion of Darrow's was conceded by Butler as eminently logical if, indeed, the large amount of potassium seemingly required by such patients could be removed from the site of delivery in the extracellular fluid with sufficient rapidity for the patient to escape potassium cardiotoxicity.

Always anxious to evaluate a new proposal quickly, Butler suggested that potassium be added to the fluid therapy of a group of carefully selected patients. The matter of individual choice was left to me, since as a resident, I would be seeing these infants on entry. History, careful physical examination and such limited laboratory determinations as might give immediate results in those prephotometer days were to be done. If these clearly indicated a need for intravenous therapy of one of the several types so carefully described in Butler's own recent article, and if, in addition, a need seemed to exist for the inclusion of potassium, then the infant was to be transferred to the metabolic unit. Complete balance data were to be obtained during infusion of the carefully contrived mixture especially suited to the patient's needs.

A number of such studies were carried out. I should interject at this point that the safety and benefit of including potassium in infusion fluids was clinically evident almost immediately—far sooner than Miss MacLachlan and her devoted crew in research laboratory could return to us the multiple, meticulous analyses of blood, urine,

---

Dr. Crawford is a staff member of the Department of Pediatrics at the Harvard Medical School and of the Children's Service at the Massachusetts General Hospital. He made this presentation at the Annual Pediatric Conference of the Raymond Blank Memorial Hospital, in Des Moines, in April, 1962.

The ideas expressed herein are based on studies done over a number of years in connection with projects supported by the Commonwealth Fund of New York, and the United States Public Health Service grants A-808, H-1529, H-2752 and HTS-5139. In addition, the author is privileged to hold a United States Public Health Service Senior Fellowship.

stool and vomitus, and of the various aliquots of our special intravenous fluid mixtures in order that the arithmetic necessary for balance-calculation could be undertaken.

With the advent of these analytic results, a very disquieting situation became evident. This was pointed up by data on two infants who had been judged, on hospital entry, to be clinically as alike as the two proverbial peas. On the basis of this judgment, they had been given fluids of nearly identical composition and in similar amounts—a rare event in those days. Pride in my judgment as a clinician was dashed when the metabolic data revealed distinct dissimilarities between the two infants. The difficulty in one of them proved to have been an example of dehydration due almost solely to water loss. The other had suffered depletion not only of water—and this to a relatively lesser extent than anticipated—but also of extra- and intracellular electrolytes in an across-the-board but rather quantitatively-complex pattern. However, even while the wound to my pride still rankled, awareness of the more important fact dawned upon me. Both infants had recovered promptly. Not only had both recovered, but in the process, the needs of each had been met by the parenteral fluids supplied, and the materials that had been delivered in excess of need had been excreted. The urine of the infant lacking only water had been scant, but rich in all those electrolyte components we had mistakenly provided. That of the depleted infant, on the other hand, had been copious, dilute and almost free of electrolyte.

From experiences such as this, I began to give credit for success where credit was due—namely to the homeostatic mechanisms with which we are all endowed and without which the physician, with all his modern wisdom, would succeed very much less frequently. I think that you must all be aware that our group has since advocated using a solution of uniform composition in treating virtually all patients who require parenteral fluids—infants or adults, and patients with either medical or surgical diseases. The relatively large number of metabolic balance studies[3-7] carried out in patients to whom this fluid has been administered attest less convincingly to the efficacy with which patients select what they need and reject what is surplus than does the fact, perhaps, that in the course of a year more than 100,000 liters of the multiple-electrolyte solution is given with success to the wide variety of patients who submit themselves to all the various services of our general hospital.

I should like now to describe—and admire—some of these homeostatic mechanisms with which our patients are so fortunately endowed. Just to reflect, on the one hand, upon the extraordinary diversity of diet encountered in a survey of world eating habits, and on the other, upon the nearly perfect homogeneity in body composition of all individuals is simply illustrative of the precision with which these mechanisms of adjustment operate. Yet, it is a fact that today we know only a little of how these homeostatic mechanisms accomplish their objective.

THE MECHANISMS THAT CONTROL BODY WATER

No constituent of the body is more plentiful or more closely guarded than is water. Let us take a close look at what we know about mechanisms operating to adjust body water, both those governing its relation to other solutes—sodium, potassium, glucose, urea, etc.—and those determining volume. At nearly all times, water is maintained in the body in an amount such that in relation to dissolved constituents, the osmolality of body fluids ranges narrowly about the figure of 285 mOsm/kg. both intracellularly and extracellularly. The total amount of water is maintained with equal constancy at approximately 70 per cent of the weight of soft tissue, discounting fat.

How is this constancy achieved? The chief mechanism governing water intake is thirst. Thirst is a sensation of extraordinarily high survival value, on which we rely completely in health, and should rely whenever possible in treating our sick patients.

Some years ago, our group studied two patients with far-advanced nephritis.[8] This disease had resulted in loss of the principal homeostatic mechanism governing the facultative outgo of water—namely, the ability to dilute and concentrate urine. During an initial study period, both boys were asked to eat a fixed diet, and we presumptive physicians undertook to prescribe an appropriate concomitant water intake in accordance with slide-rule calculations. During a second period, on the same dietary intake, the patients were permitted to drink as much or as little water as they felt thirsty for. During each of the two periods, a number of blood samples were analyzed for osmolality (Figure 1). Far greater constancy of this index of body-water concentration was evident during the latter period when thirst governed water intake. This experience provided me yet another humbling lesson as regards the difficulty of attempting to substitute for even one of nature's inbuilt mechanisms of homeostasis.

The site at which the neural cells responsible for thirst appear to be located is the ventral hypothalamus. Bengt Andersson[9] has shown this in goats by implanting electrodes permanently in that area. Animals carrying these electrodes, with which they live happily for months, respond to electrical stimulation by seeking water, and drinking for as long as the current is continued. This experiment may be disastrous for their internal economy, since intimately associated with the area from which the sensation of thirst derives is the area concerned with the release of vasopres-

sin, the peptide which facilitates the concentration of urine.

Normally, of course, when we drink to excess, vasopressin release is suppressed and the urine becomes dilute, so that surfeit water is eliminated, and both the volume and the tonicity of body fluids are preserved. The simultaneous release of vasopressin and intake of superfluous water lead to water intoxication, a syndrome virtually never encountered save when an unwary physician is on the scene. Unfortunately, since Thomas Latta, in 1832, showed the value of parenteral fluids by prolonging the life of a cholera patient with saline delivered through an intravenous quill,[10] water intoxication has become an increasingly frequent and all too commonly lethal event in hospitals.[11] Ordinarily, the times at which it is appropriate for us to seek water are times when it is appropriate, as well, to conserve water at the kidney, and it is likely that this is why nature has so intimately associated thirst and vasopressin release.

A relatively little known interrelationship between vasopressin and the sensation of thirst is the direct influence of the hormone on behavior. Pasqualini and Codevilla[12] were the first to be sufficiently impressed to make written note of something that many others must have noted more casually. In the diagnosis of patients suspected of having diabetes insipidus, water is often denied during a relatively brief period of hours, during which the patients actually having the disease lose water much more rapidly than do the rest of us, and so become more thirsty. Their intense thirst is due primarily to the rapidly increasing osmolality of body fluids, so that the usually well-protected level of 285 mOsm/kg. rises to 320 mOsm/kg., let us say. Incidentally, an equally intense sensation of thirst can be provoked almost instantly in any one of us by infusing a small amount of hypertonic fluid into the branch of the internal carotid artery which supplies the particular hypothalamic area where Andersson locates his electrodes. What impressed Codevilla and Pasqualini was that when, at the end of a period of water denial, they gave their intensely thirsty patients vasopressin, thirst abruptly diminished or became absent, though without a change in the tonicity of body fluids.

Basic to survival though it be, thirst is a sensation not at all times so well developed as it is in ourselves. Of some pediatric interest is the fact that infants who enter the world unable to seek water probably do not experience thirst as we know it. They are unable to distinquish between, on the one hand, what is water and will rehydrate them when dry, and, on the other, what will take care, perhaps, of volume needs, but will further distort osmolality. Neonates fail to respond to vasopressin with anything like the efficiency which will obtain at three weeks of age.[13] They also have a scant hypothalamic supply of vasopressin.[14] Of course, they survive because nature has intended that they drink their mother's milk which, unlike the milks appropriate to the much

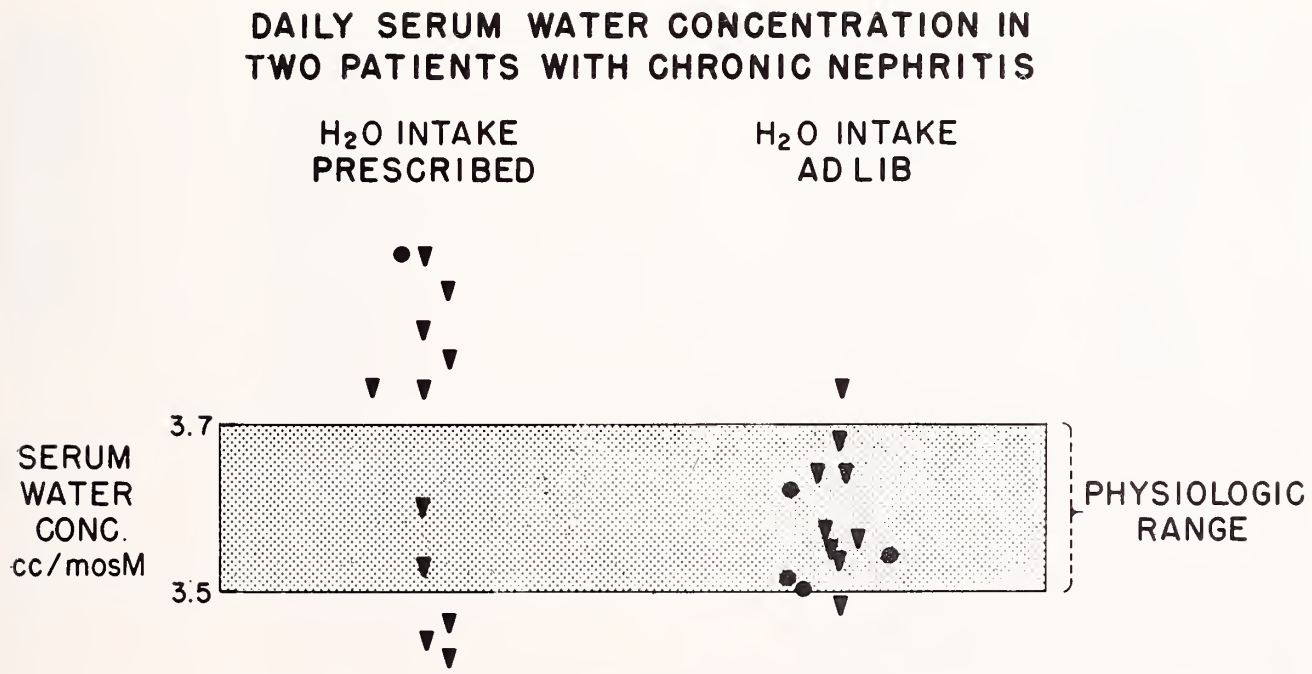

Figure 1. Greater precision of water regulation results from reliance upon patients' thirst than upon physicians' calculations. Values for tonicity are expressed as volumes (cubic centimeters) of water per unit (milliosmols) of solute in serum. Thus the points above the shaded zone indicating the physiologic range denote overhydration, and those below, dehydration. (From Kerrigan, G. A., Rate of neurohypophyseal-antidiuretic-hormone-renal system in everyday clinical medicine, J. Clin. Endocrinol. and Metab., 15:265-275, (Feb.) 1955.)

more rapidly growing newborns of the barnyard species, contains less solute and provides water in amounts appropriate to the high level of their need.[15] Not only is undiluted cow's milk so rich in phosphate as to precipitate neonatal tetany[16] —often an iatrogenic disease resulting from physicians' inadequate understanding of homeostasis— but undiluted cow's milk when fed to the neonate may also provoke dehydration because of its large surfeit of minerals and nitrogen relative to anabolic requirements[17] (Figure 2).

Deaths of small infants from ingestion of formulae inadvertently supplemented with salt instead of sugar, such as recently occurred at Binghamton, New York,[18] emphasize the newborn's lack of discrimination and his dependency on a safe environment. We adults, on the other hand, instantly recognize and reject coffee or other drinks to which salt has accidentally been added.

Satisfaction in the human neonate depends, at first, on the distension of his stomach. A little later, a glycostatic control mechanism is added, and sucking is terminated sooner after beginning a feeding of high glucose content that after the start of a feeding containing little sugar. Only at about the time when crawling commences does the infant develop a discriminating thirst mechanism that will make him exhibit a preference between two equally available bottles, one containing a dehydrating mixture, and the other containing water.

THE ROLE OF THE KIDNEY IN CONTROLLING WATER ELIMINATION

Let us now leave thirst and mechanisms controlling water intake, and pass to the kidney and control of water elimination. The extraordinary mechanism by which the mammalian kidney is able to respond to the influence of anti-diuretic hormone and to secrete a urine hypertonic to blood plasma has received great attention in the last 10 years—so much, in fact, that there would

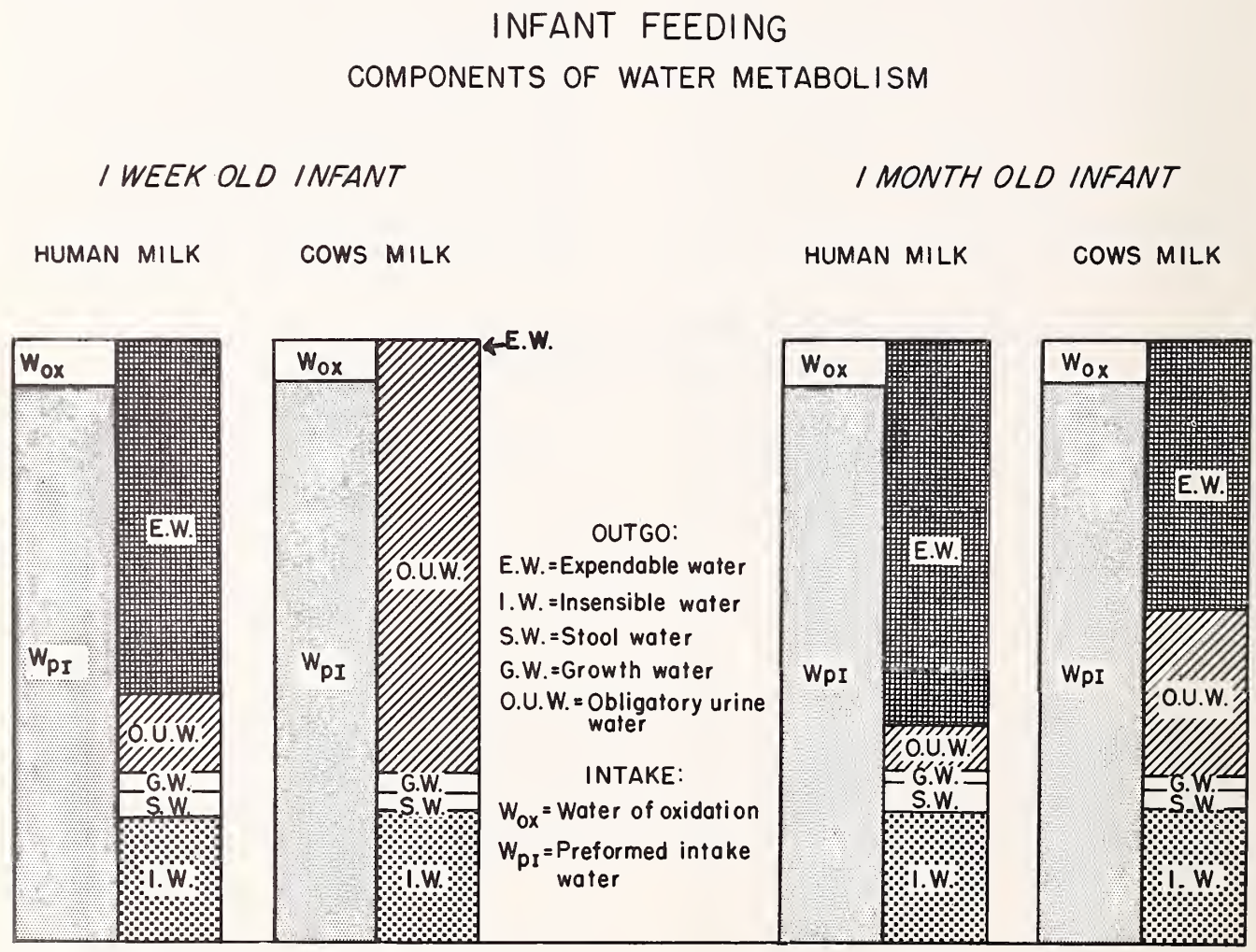

Figure 2. Comparison of human and cow's milk feeding on components of water balance in infants one week and one month of age. Note that expendable water, the component available from intake to meet requirements such as those imposed by heat or diarrhea, is much reduced in the one-month-old infant fed cow's milk, and is virtually absent in the one-week-old infant. The surfeit of minerals and protein in cow's milk over amounts required for the infant's anabolism obligate large amounts of water for disposal in urine, the quantity being greater in infants at one week of age, as a result of their lesser ability to concentrate urine.

appear to be little need to go into the known facts relative to its operation.[19] Nevertheless, it should be noted that there are still a number of details to be worked out. In the philosophical context of these considerations, it seems appropriate to recall that it was an interdisciplinary approach that led to the discovery of the mechanism by which this homeostatically valuable function is mediated. When the organic chemist Hargitay, the physicist Kuhn, and the physiologist Heinrich Wirz began to discuss the kidney over the lunch table at the University of Basel, the loops of Henle with their companion capillary loops had long been known, for the German anatomist for whom these structures were named lived from 1808 to 1885. The principle of their function was not unfamiliar, for another nineteenth-century discovery, the countercurrent heat trap, at that time was important because it had improved the efficiency of the steam engine and thus had given impetus to the industrial revolution. However, this engineering development is of interest here since it is so remarkably similar in design to the countercurrent exchange system which enables the kidney to trap sodium, chloride and urea in its medullary interstitium. The high concentration of chloride in medullary interstitial tissue was first noted by Grünwald in 1909.[20] The Swedish physiologist Ljungberg[21] rediscovered it in 1947, but neither he nor his predecessor appreciated its significance. Fortuitously, Hargitay was employing the countercurrent multiplication system for concentrating organic molecules from dilute solutions, but in contrast to those of the kidney, his hairpin loops were so large that they had to be located in the stairwell adjacent to his laboratory! As most of you know, it did not take long for these three men, by correlating kidney structure with function, to become aware of the means by which elaboration of urine hypertonic to blood plasma takes place.[22]

Up to this point, little has been said about volume control. It has been noted that when water activity or tonicity of body fluids is disturbed from its usual position at 285 mOsm/kg., either thirst develops with coincidental increase in tonicity of urine, or if the disturbance is in the opposite direction, water becomes loathsome and the urine greatly diluted. These mechanisms might operate with great efficiency, and yet not serve to keep us from very considerable day-to-day changes in body-fluid volume. Since, for practical purposes, all the body fluids are in osmotic equilibrium, a gain in one place, save in the presence of edema, will be reflected by a proportionate volume gain elsewhere. Such changes, were they reflected in both intra- and extracellular spaces, would be intolerable, particularly to the central nervous system, which is enclosed in a rigid box, at least from the time of fusion of the cranial sutures. Interestingly, the large swings in water and solute balance that Gamble[23] described as occurring in four- to five-day cycles are seemingly limited in the infant to the period prior to his acquisition of a rigid cranial vault. Were such swings to occur later, we should all be liable to periodic anoxic encephalopathy, for when cerebral edema occurs, pressure mounts, and blood flow to the brain is squeezed off.

When blood volume is suddenly reduced, as by hemorrhage, there is an immediate massive release of antidiuretic hormone. In this particular circumstance, hormone release occurs in amounts sufficient not only to cause maximal renal water conservation, but also to exert a vasopressor effect. Especially to be noted is the fact that this response to volume-change occurs even when there has been no change in blood osmotic pressure. In the emergency room of a general hospital, one may see this homeostatically-valuable volume-control mechanism at work. Take, for example, the patient whose peptic ulcer has bled during a bout of beer-drinking. Immediately prior to hemorrhage, profuse water diuresis may have safeguarded our patient from overindulgence in dilute fluid. When hemorrhage suddenly reduces vascular volume, oliguria, vasoconstriction and sodium conservation abruptly supervene even though hypotonicity may still persist. Hence, in addition to the hypothalamic-tonicity control which serves us in ordinary day-to-day living, we are endowed with an emergency mechanism. This emergency system is actuated by volume change, irrespective of tonicity. It is switched into action by acute volume reduction. The switch also has a full "off" position, the effects of which may be seen in patients who have been given more fluid than they can successfully cope with. Even with isotonic or slightly hypertonic loads, but especially when the fluid load is hypotonic, the urine becomes dilute, and large amounts of sodium are abruptly excreted.[24] The excess sodium excretion in this circumstance and its conservation following hemorrhage, as noted above, are indications of the intimate association between the regulating mechanisms for water and for sodium. There is evidence that volume control is mediated by neuro-endocrine reflex arcs activated by vascular pressure-sensitive elements, the best documented being those located at the thyrocarotid junction.[25] These reflex arcs are no doubt of great survival value, but they seem not to be the sole guardians of volume homeostasis.

VOLUME-CONTROL MECHANISMS IN INDIVIDUAL CELLS

During the past year, Drs. John Isom, Mehmet Kalayci and I have collaborated in studies which suggest that each cell of the body is endowed with a volume-control mechanism of its own.[26] This work grew out of the observations of Drs. Philip Dodge and Juan Sotos,[27, 28, 29] who

showed that when the whole animal is rendered hypertonic, marked acidosis, hyperkalemia, hyperphosphatemia and hyperglycemia develop—events suggesting that hypertonicity slows the transport activity of cells. On the other hand, the dumping of sodium in urine and the diminished intracellular content of this ion noted in studies of experimental hypotonicity[24, 29] equally suggested that dilution may provoke unusual acceleration of ion transport.

Experiments using isolated tissue have confirmed that active transport of sodium is inversely correlated with the tonicity of the medium. Our first interpretation was that "pores" in the diffusion barrier of cell membranes were being stretched more widely open or were being closed, respectively, by osmotically-determined increments or decrements in cell water (Figure 3). If the pore-size were rate limiting on the active extrusion of sodium from the cell interior, these changes would provide an explanation for the increased net flux of sodium in hypotonic media and for its reduction in hypertonic fluids. However, closer study of the behavior of isolated tissue suggests that the mechanism is more sophisticated than this, for it has been found that though media of the same tonicity affect sodium transport equally, they yield differing degrees of swelling or shrinkage of cells, depending on their composition. It now seems more likely that it is the mitochondria, the batteries of cell metabolism, which undergo changes in size and parallel changes in energy output, with alterations in osmotic pressure. Whatever the mechanism, the adaptive response to hypotonicity seems to be an acceleration of the discharge of solute—chiefly sodium—from the cell interior, thus reducing cellular solute content and hence the extent to which cells are swollen. In hypertonicity, metabolic activity is diminished. As a result, "idiogenic" osmols—sodium and metabolic by-products, especially organic acids—accumulate in the cell interior, and initial shrinkage is overcome. When cells have adapted to hypertonic or hypotonic surroundings, their return to eutonic medium results, immediately, not in reversion to normal size, but in unusual swelling and shrinkage, respectively.

Possibly these observations have relevance to a common clinical problem. When infants with hypertonic or hypernatremic diarrheal disease enter the hospital, they are often conscious and relatively well intergrated functionally at the time treatment is begun. However, with rapid restoration of tonicity to normal, there may be drastic deterioration and convulsions. Paradoxically, this state can be controlled by once again producing hypertonicity through the administration of concentrated saline.[30, 31] Hypertonicity similar in degree to that encountered clinically can be developed chronically in experimental animals. When correction depends on spontaneous or voluntary drinking, seizures have not been observed, nor is the animal's indulgence so unrestrained that it corrects the hypertonicity with anything approaching the rapidity that we as physicians are apt to favor.

CONCLUSION

There should be little need for a long concluding statement. Evolutionary processes have seen the development of cells, and more recently of multicellular organisms, endowed with wonderfully-complex mechanisms for survival in environmental adversity. We in the biological sciences are physiologic archeologists taking a look at ourselves and our beginnings. Though our understanding of functional integration in biologic systems is limited at present, we should come away from our laboratories neither discouraged nor,

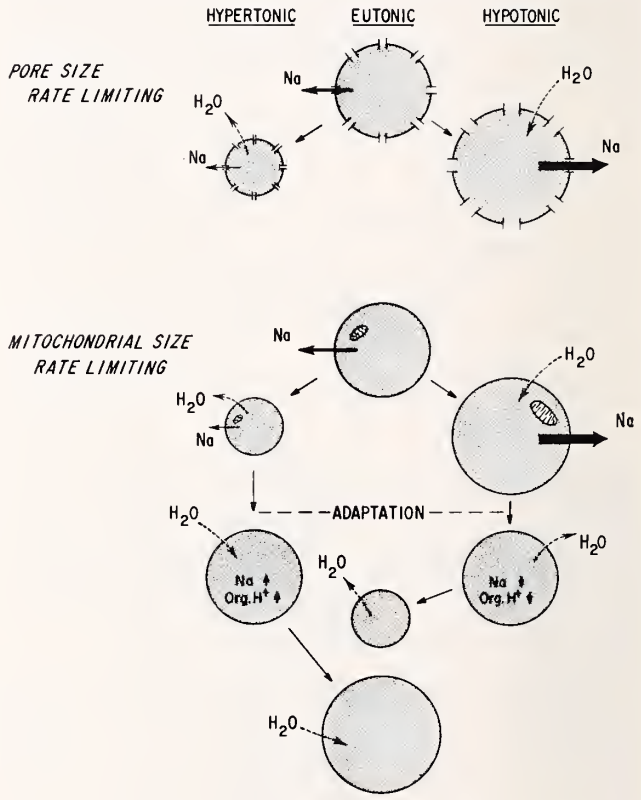

Figure 3. Schematic representation of cellular reactions to hypertonic and hypotonic media. Since water moves freely across most cell walls to nullify osmotic gradients, the immediate response to hypertonicity is cellular shrinkage, or in hypotonic fluids, swelling. Concomitantly, active sodium extrusion from the cell interior is affected as indicated by the arrows. The latter reaction might depend upon change in size of pores in the cell membrane (upper section), but present evidence favors an influence on a subcellular component, possibly mitochondria (lower section). The alterations in active sodium transport appear to help restore cell volume in anisosmotic media by increasing or decreasing their content of osmotically-active solute (adaptation). When adaptation has occurred, restoration of cells to eutonic surroundings results in abnormal swelling of the cell previously bathed in hypertonic medium, and shrinkage of cells transferred from hypotonic medium.

like Archimedes, crying, "Eureka!" As physicians, we shall do well to school ourselves in "the wisdom of the body," for attention to the lessons thus disclosed will do much to help us avoid producing disease, and more importantly will aid us in designing successful treatment and prophylaxis.

REFERENCES

1. Butler, A. M., and Talbot, N. B.: Medical progress; parenteral fluid therapy; estimation and provision of daily maintenance requirements; estimation of losses incident to starvation and dehydration with acidosis and alkalosis and provision of repair therapy. New England J. Med., **231**:-585-590, (Oct. 26), and 621-628, (Nov. 2) 1944.
2. Darrow, D. C.: Medical progress; body fluid physiology; relation of tissue composition to problems of water and electrolyte balance. New England J. Med. **233**:91-97, (July 26) 1945.
3. Butler, A. M.: Parenteral fluid therapy in diabetic coma. Acta paediat., **38**:59-70, 1949.
4. Lowe, C. U., Rourke, M., MacLachlan, E., and Butler, A. M.: Use of parenteral potassium therapy in surgical patients; its role in preventing chloride loss. Pediatrics, **6**:183-191, (Aug.) 1950.
5. Talbot, N. B., Kerrigan, G. A., Crawford, J. D., Cochran, W., and Terry, M.: Medical progress; application of homeostatic principles to practice of parenteral fluid therapy. New England J. Med., **252**:856-892, (May 19), and 898-906, (May 26) 1955.
6. Border, J., Talbot, N. B., Terry, M., and Lincoln, G.: Use of multiple electrolyte solution to prevent disturbances in water and electrolyte metabolism. Metabolism, **9**:897-904, (Oct.) 1960.
7. Richie, R. H., and Talbot, N. B.: Management of diabetic keto-acidosis and coma. Pediat. Clin. North America, **9**:263-276, (Feb.) 1962.
8. Talbot, N. B., Richie, R. H., and Crawford, J. D.: Metabolic Homeostasis: Syllabus for Those Concerned With the Care of Patients. Boston, Harvard University Press, 1959.
9. Andersson, B.: "Polydipsia, antidiuresis and milk ejection caused by hypothalamic stimulation." In: Heller, H., ed.: The Neurolypophysis. New York, Academic Press, 1957, p. 131.
10. Latta, T.: Letter to secretary of Central Board of Health, London, affording view of rationale and results of his treatment of cholera by aqueous and saline injections. Lancet, **2**:274-277, (June 2) 1832.
11. Crawford, J. D., and Dodge, P. R.: Complications of fluid therapy in patients with neurologic disease. Pediat. Clin. North America, **6**:257-279, (Feb.) 1959.
12. Pasqualini, R. Q., and Codevilla, A.: Thirst suppressing ("antidipsetic") effect of pitressin in diabetes insipidus. Acta Endocr. Kobh., **30**:37-41, (Jan.) 1959.
13. Ames, R. G.: Urinary water excretion and neurohypophyseal function in full term and premature infants shortly after birth. Pediatrics, **12**:272-281, (Sept. pt. 1) 1953.
14. Heller, H.: Aspects of adrenal and pituitary function in newborn. Neonatal Studies, **3**:31, 1954.
15. Abderhalden, E.: Die Beziehungen der Zusammensetzug der Asche des Säuglings zu derjenigen der Asche der Milch. Ztschr. f. physiol. Chem., Strassb., **26**:498-500, 1899.
16. Gardner, L. I., MacLachlan, E. A., Pick, W., Terry, M. L., and Butler, A. M.: Etiologic factors in tetany of newly born infants. Pediatrics, **5**:228-239, (Feb.) 1950.
17. Darrow, D. C., Cooke, R. E., and Segar, W. E.: Water and electrolyte metabolism in infants fed cow's milk mixtures during heat stress. Pediatrics, **14**:602-617, (Dec.) 1954.
18. Young, W. R.: Tragic mix-up of sugar and salt. Life, Vol. 52, No. 17, p. 98, 1962.
19. Wirz, H.: "Newer concepts of renal mechanism in relation to water and electrolyte excretion." In: Stewart, C. P., and Strengers, Th., eds.: Water and Electrolyte Metabolism. New York, Elsevier, 1961.
20. Grünwald, H. F.: Beiträge zur Physiologie und Pharmakologie der Niere. Arch. f. exper. Path. u. Pharmakol., Leipz., **60**:360, 1909.
21. Ljungberg, E.: Reabsorption of chlorides in kidney of rabbit. Acta Med. Scandinav. Supp. **186**, pp. 1-189, 1947.
22. Wirz, H., Hargitay, B., and Kuhn, W.: Localization des Konzentrierungsprozesses in der Niere durch direkte Kryoscopie. Helvet. physiol. et pharmacol. Acta, **9**:196-207, 1951.
23. Gamble, J. L.: Chemical Anatomy, Physiology and Pathology of Extracellular Fluid: A Lecture Syllabus, Sixth Edition. Boston, Harvard University Press, 1954.
24. Leaf, A., Bartter, F. C., Santos, R. F., and Wrong, O.: Evidence in man that urinary electrolyte loss induced by pitressin is function of water retention. J. Clin. Invest., **32**:868-878, (Sept.) 1953.
25. Bartter, F. C., Mills, I. H., and Gann, D. S.: Increase in aldosterone secretion by carotid artery constriction in dog and its prevention by thyrocarotid arterial junction denervation. J. Clin. Invest., **39**:1330-1336, (Aug.) 1960.
26. Isom, J. A., Kalayci, M. N., and Crawford, J. D.: Responses of isolated toad bladder to anisosmotic bathing media. (Abstract) J. Clin. Invest. **41**:1367, (June) 1962.
27. Sotos, J. F., Dodge, P. R., Meara, P., and Talbot, N. B.: Studies in experimental hypertonicity; I. pathogenesis of clinical syndrome, biochemical abnormalities and cause of death. Pediatrics, **26**:925-938, (Dec.) 1960.
28. Sotos, J. F., and Dodge, P. R.: Studies in experimental hypertonicity; II. hypertonicity of body fluids as cause of acidosis. Pediatrics. In press.
29. Dodge, P. R., Crawford, J. D., and Probst, T. H.: Studies in experimental water intoxication. AMA Arch. Neurol., **3**:513-529, (Nov.) 1960.
30. Skinner, A. L., and Moll, F. C.: Hypernatremia accompanying infant diarrhea. AMA J. Dis. Child., **92**:562-575, (Dec.) 1956.
31. Weil, W. B., and Wallace, W. M.: Hypertonic dehydration in infancy. Pediatrics, **17**:171-181, (Feb.) 1956.

Malpractice Suits Leveling Off

Nationally, according to a report in the August 3 issue of MEDICAL WORLD NEWS, there are signs that malpractice suits may actually be leveling off, rather than increasing. In California, where malpractice insurance rates are the highest in the country, insurance men say that the incidence of suits in the past two years in big-city areas has remained constant. One report states the number of claims against hospitals has dropped nearly 40 per cent in six years. In New York, the state medical society's group plan, which insures 15,000 of the state's 25,000 doctors, reports so slight an increase in the number of claims that premiums are not being increased. The AAGP says its experience has been so good in recent years that the academy-sponsored group plan is paying a dividend of 10 per cent to each of the 2,000 enrolled members at the end of each premium year. The National Bureau of Casualty Underwriters, despite its reputation for conservatism and caution, has not raised rates in 29 states and the District of Columbia, and has reduced them in seven, one of which is Iowa. Significantly, rates remain the same in New York and in the San Francisco and Los Angeles areas.

Though the numbers of suits are on a plateau, the amounts of judgments continue to increase. The Bureau says its latest nationwide figures on claims, including losses and expenses, indicate an increase in the average cost per claim from $2,982 in 1954 to $3,474 in 1958. At the upper limits of damages awarded by juries or agreed to in out-of-court settlements, there is spectacular evidence of increases: a $334,000 jury award in California; a $317,000 settlement in New York; and a $192,000 jury verdict in Florida—all of them new highs in those states.

Says Norman Nachman, spokesman for the Bureau: "In a prosperous economy, people sue big. Good times bring good claims." Increase in amounts awarded by juries is a direct result of inflation, in the opinion of Howard Hassard, executive director and legal counsel of the California Medical Association. "As long as the dollar price rises," he says, "jury awards will increase in size."

Congenital Atresia of the Esophagus With Tracheo-Esophageal Fistula

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Congenital atresia of the esophagus with tracheo-esophageal fistula presents many problems. In this anomaly there can be five different types of deformities. The most common, "Type A," consists of an atresia of the esophagus with the fistula between the lower segment and the trachea. "Type B" consists of a complete atresia of the esophagus without any fistulous communication with the trachea. In "Type C," there is a congenital fistula between the trachea and the esophagus, but there is no esophageal atresia. In "Type D," there are fistulae present between both proximal and distal esophageal segments and the trachea. In "Type E," there is a fistula present between the proximal esophageal segment and the trachea only.

The first successful operation for correction of this congenital deformity was carried out by Levin. On November 28, 1939, he operated on a two-day-old male infant, starting multiple-stage procedures which included gastrostomy, closure of the tracheo-esophageal fistula, exteriorization of the proximal blind pouch, making a cervical esophagotomy, and restoration of the alimentary continuity through the use of a jejunal loop. In 1953, Levin and Varco reported a series of 10 such cases.

Shaw, in 1939, reported the first attempt at reconstruction of the esophagus by anastomosis of the two segments after ligation of the fistula. Unfortunately the child died on the twelfth postoperative day, after what apparently was a transfusion reaction.

Shaw mentioned a personal communication from Sampson reporting a quite similar procedure. Sampson's baby had died 27 hours following the operation. His baby was 12 days old at the time of surgery and was undoubtedly a rather poor surgical risk.

Haight was the first surgeon successfully to carry out a one-stage procedure with ligation of the fistula and end-to-end anastomosis of the esophageal segment. In one of his reviews he listed that case as No. 10, and mentioned four previous cases in which he had done thoracotomies before this successful procedure in 1941.

I am reporting a series of 21 operative patients. The first is my initial success in the correction of this anomaly, in 1947 at the State University of Iowa, prior to my coming to Des Moines. The rest of this report will be based on my experience with patients who have been referred to me at Raymond Blank Memorial Hospital, Des Moines.

DIAGNOSIS

Polyhydramnios in the mother should give the obstetrician some warning that the newborn infant may have an atresia of the esophagus or of some other portion of the gastrointestinal tract. The infant who has respiratory distress due apparently to aspiration of mucus into the tracheobronchial tree, one who salivates profusely, obviously not swallowing his sputum, or one who chokes upon attempted feeding, must be suspected of having a congenital esophageal atresia. One can prove the diagnosis by passing a fairly firm catheter into the esophagus and feeling an obstruction. A relatively new, firm catheter should be used, since a softened catheter may curl up in such a way as to give a false impression. The diagnosis can be further substantiated by the introduction of a non-irritative radiopaque material into the esophagus in small amounts so as to demonstrate the blind pouch. If the blind pouch is noted, one then finds out whether there is air in the stomach and intestinal tract. The presence of air indicates that there is a communicative fistula between the lower segment of the esophagus and the trachea. I prefer preoperative x-rays with radiopaque material in all cases, since they may demonstrate unsuspected fistulae or other abnormalities.

In my experience at Blank Memorial Hospital, all of the cases have been "Type A," namely an atresia of the esophagus with a fistula between the lower segment and the trachea. Although the diagnosis can be made clinically just by passing a catheter, I feel that all patients should have roentgenologic studies prior to surgery, since by that means one may demonstrate a fistula between the upper blind pouch and the trachea, or other changes which should be known prior to thoracotomy. Preoperative care consists primarily of prevention or treatment of pulmonary complications.

If there has been a delay in diagnosis, the child

Dr. Dorner made this presentation at a meeting of the Iowa Academy of Surgery, in Iowa City, on October 13, 1961.

frequently will have pneumonia and/or atelectasis. These conditions, or either of them, should be treated with aspiration of the pharynx, possibly with tracheal aspiration, and with antibiotics. We have delayed surgery for a period of 8 to 12 hours while trying to improve the patient's respiratory condition. Fluid balance must be obtained, but care must be used not to give these patients too much fluid, including too much saline.

SURGICAL TREATMENT

The surgical treatment is carried out under general anesthesia. All of my patients have had intratracheal anesthesia. We now make an approach through a periscapular incision in the fourth intercostal space. Some of these operations were done with an extrapleural approach, but a transthoracic approach makes the operation much simpler, and one can get a better exposure of the esophageal segment, and a better anastomosis can be accomplished. There has always been a great likelihood that one might tear the pleura somewhere in the course of the procedure, particularly while trying to ligate the azygos vein and divide it to expose the esophageal segment. The greatest argument for carrying out the extrapleural approach has been that even though leaks may occur in the esophageal anastomosis, the leak will be extrapleural, and the patient will survive. The fact that a number of our patients developed leaks postoperatively but still survived, even though we carried out a transthoracic approach, would obviate that argument.

After the incision has been made, the lung is depressed gently so as to expose the region of the azygos vein. This vein is identified and divided, after being doubly ligated. The upper blind pouch can easily be identified at the apex of the thoracic cavity, lying beneath the pleura posterior to the trachea. The lower segment can be found passing downward in the gutter along the spine. As the pleura is incised over it, the communication with the trachea can be seen.

I frequently have passed a rubber band around the distal esophagus, using it for slight traction on this segment, and then I have divided the esophagus from the trachea near its communication. The esophageal stump on the trachea is next closed with several interrupted sutures of 00000 silk. The anesthetist then passes a catheter down the upper segment, identifying the lowermost portion of the upper pouch. The upper segment is then dissected out so that we may gain additional length on the esophagus. Most surgeons believe that one should obtain the length from this segment, rather than dissect the lower segment too thoroughly, lest the blood supply to the lower segment be jeopardized.

Anastomosis is then carried out between the mucosal layer of the upper segment and the full thickness of the lower segment over a catheter passed through the upper segment and down into the lower segment. After the first layer has been completed, sutures are passed between the outer layer of the upper segment and are brought over the anastomosis line. A small catheter drain is attached to the chest wall and run out through a stab wound so as to drain any possible leakage from the anastomosis site.

POSTOPERATIVE CARE

Whether or not a gastrostomy is done for feeding these patients postoperatively depends upon our feeling regarding the anastomosis. In the more recent cases, it has been our policy, if the anastomosis appears satisfactory, to wait a period of about four days postoperatively, treating the patient with parenteral fluids. A radiopaque material is then given as a swallow. If no leak is present, we then start feeding the patient without the use of the gastrostomy. Of my last seven cases, five did not receive gastrostomies. If at the time of surgery we feel that a leak may occur or that the anastomosis site may prove unsatisfactory for some reason or other, a gastrostomy is then done. If the child is in good condition immediately after the anastomosis, the gastrostomy is done at that time, but if there is any question, we wait 24 to 48 hours. Obviously, if a leak occurs, the gastrostomy is used for feeding until the leak heals. It may be necessary to put in a number of drains to relieve tension from the leak and to drain off the secretions from the esophagus. In our experience, I would say that the esophageal leak and/or pulmonary complications have been the greatest cause of postoperative death.

Also, after the esophagus heals and the child is discharged, it is our policy to have the child return at frequent intervals for dilatation of the esophagus. If a gastrostomy has been present, retrograde dilatations are carried out. If no gastrostomy has been done, we use wax urethral dilators passed from above.

This series includes 21 operative cases. There were eight deaths. One of these occurred in a child on whom the repair of the esophageal deformity was successful; however, the patient was later brought back into the hospital and died of infantile coarctation of the aorta. The other seven were surgical deaths. One patient, early in the series, was operated on when he was *in extremis;* the other six were surgical deaths, having complications such as esophageal leak with empyema and mediastinitis as the cause of death. Other children had aspiration pneumonia. One child died with an associated pyloric stenosis and other complications.

Thus, we have 13 living children. It is interesting to note that since 1959 we have operated eight cases with only one death. That child died with a slight leak of her esophagus, but it would seem, in the light of similar trouble in some of the other patients, that this amount of leak should have been tolerated. Because she had a persistent rapid pulse and also showed some jaundice, we suspected that the child might have a congenital cardiovascular

anomaly. However, none was found at autopsy.

Counting the child who died of coarctation and the child whom I operated *in extremis* in 1952, we have had eight deaths among the operated Blank Hospital patients—eight out of 21 operative cases. This is a mortality figure of 38 per cent; or to state this matter in another way, we can say that of 21 operative cases we have salvaged 13, with a survival rate of 62 per cent. It must be emphasized that this series does not include all of the patients with this anomaly admitted to Blank Hospital, for some of the children died without coming to surgery, and a number of them were operated by other surgeons.

Potts, in 1960, reporting cases from 1946 to 1960, stated the following: "During our first eight years of experience with atresia of the esophagus, the mortality in 91 cases was 53 (58 per cent). During the past six years 34 of 104 patients died, with a mortality rate of 32.7 per cent. The over-all mortality of 155 cases to January, 1960, is 44 per cent."

Just as in Potts' series, there is no question that further experience with this anomaly will cut down the mortality rate. I should like again to point out that of eight patients we have operated on since 1959, only one child has died.

TABLE 1

SURVIVAL AND MORTALITY IN SURGERY FOR ESOPHAGEAL ATRESIA IN RELATION TO BIRTH WEIGHT

Birth Weight in Pounds	Living	Dead	Per Cent Survival	Per Cent Mortality
4 lbs. to 4 lbs. 15 oz. . .	2	1	66	33
5 lbs. to 5 lbs. 15 oz. . .	4	1	80	20
6 lbs. to 6 lbs. 15 oz. . .	2	1	66	33
7 pounds and over	2	3*	40	60*
Not Recorded	3	2	60	40
Totals	13	8		

* One late death due to infantile coarctation.

The birth weights have been recorded on 16 of the 21 operative cases. The recorded weights vary from 4 lbs. 5½ oz. and 4 lbs. 7 oz., minimum, to 7 lbs. 10 oz., maximum. Unfortunately, five birth weights were not recorded. A study of Table 1 shows that there actually is no appreciable difference in survival rate among these weight groupings. Obviously, the series is a small one, and probably this finding has no significance, since most authors report that the larger the baby, the greater the chance for survival. Obviously, the larger the baby the better the structures one has to work with, as far as the anastomosis is concerned.

CASE REPORTS

I should like to give a number of case reports to illustrate some of the problems we have encountered while dealing with these cases.

Case 1. N. L., our first successful case at Blank Memorial Hospital, was born on July 23, 1949, and the condition was diagnosed on July 27, 1949. She had pneumonia on admission to the hospital, and was operated on July 28, 1949.

An extrapleural approach was made. Segments of the 3rd, 4th, and 5th ribs were resected. The patient was found to have a "Type A" deformity, with the distal segment at about the level of the azygos vein. A gastrostomy was performed on July 30, 1949. Stricture developed, and on October 25, 1949, Dr. Charles W. Latchem threaded a urethral catheter up from below, via the gastrostomy, and pulled a string down. Retrograde dilatations followed, starting with No. 12 French dilators on October 27, 1949. Follow-up x-rays taken on August 11, 1950, showed evidence of a displaced esophagus to the right. There was no sign of obstruction, but there was some distortion of the esophagus.

Case 2. D. S. was born on May 4, 1958, and the deformity was diagnosed 12 hours after birth. The lower segment was near the upper segment. The lower segment was quite narrow in its first three centimeters. Surgery was also performed on May 4, 1958. Good repair was accomplished, and the patient was discharged on May 14, 1958. This baby weighed 5 lbs. 12 oz. at birth.

The patient returned on May 16, 1958, at which time she was having difficulty with swallowing. On May 30, 1958, an esophagoscopy was attempted by Dr. Robert R. Updegraff. He could push No. 10 and No. 12 French dilators through the narrow opening, but he could not get any type of tube into the stomach.

On June 1, 1958, a gastrostomy was done. Easily exposing the esophageal hiatus, by means of a small laryngoscope, I passed a urethral catheter upward through the esophagus. The hiatus was found in the pharynx, and a string was attached to it by the anesthetist. A braided silk suture was then applied to the catheter. This was pulled into the stomach, and a No. 6 retrograde dilator was pulled up through the stricture and out the mouth. Even the knot felt snug as it popped through the area of stricture, but the dilator went up rather easily. Repeated retrograde dilatations followed, and we eventually got the lumen up to the size of a No. 18 dilator. The child seemed to hold her breath during dilatations. In spite of the dilatations, she continued to have trouble swallowing her saliva.

On June 25, 1958, a laryngoscopy revealed that the string was coming out the larynx. An attempt at closure of the re-formed fistula was undertaken on July 2, 1958, and the child died on July 8, 1958. The autopsy diagnosis was empyema, with bronchopneumonia due to Pseudomonas aeruginosa.

Case 3. D. B. S. was born on March 1, 1957, and was admitted to Blank Memorial Hospital two days after birth. He weighed 5 lbs. 3¾ oz. He was operated the day of admission.

A right transpleural approach was made through the right fourth intercostal space. What at first had been thought to be the lower segment of the

esophagus proved, on further inspection, to be a right-sided descending aorta. The esophagus lay more medially. An end-to-end anastomosis, with two layers of 00000 silk, was set up in the usual manner. It was felt that a satisfactory anastomosis had been obtained without too much tension. A gastrostomy was carried out immediately after the esophago-esophagostomy. A postoperative chest film, four days later, showed some atelectasis and an associated pneumonia in the right upper lobe. The following day, a lipoidal swallow showed that the lipoidal had passed through the anastomosis site without obstruction. However, 10 days postoperatively, on March 13, 1957, there was evidence of delay at the anastomosis site. An attempt was made to pass a dilator under the fluoroscope, but this failed. Likewise, a metallic bead attached to a string failed to pass the site of the stricture.

On April 5, 1957, Dr. Edmund T. Burke attempted to pass urethral catheters through the gastrostomy and up the esophagus. These met an obstruction and turned back on themselves. On April 14, 1957, Dr. Updegraff attempted to dilate the esophagus from above, but failed to find an opening sufficient to pass a dilator.

After another failure of dilatation from below, we felt that it would be necessary to reexplore the esophagus. On April 22, 1957, I reexplored the chest through the fifth intercostal space. There was a fair amount of scarring between the lung and the chest wall. Before the esophagus could be exposed, the anesthetist reported that the patient's color had become poor and the pulse barely perceptible. Inspection of the heart showed it to be beating very slowly, with very weak contractions. When the beat did not improve, I massaged the heart with two fingers, causing an increase in the frequency and strength of the contractions. At the same time, additional blood was pumped into the patient via the cutdown, and the beat gradually became stronger so that eventually it appeared quite satisfactory. The esophagus was thereupon exposed.

A catheter was passed down through the upper segment, identifying the area of obstruction. A longitudinal incision was then made in the esophagus, cutting across the area of scarring. Sutures were placed on each side, and the opening was pulled transversely. The opening was made into the mucosa at the dependent site of the catheter in the upper pouch. Then a transverse closure in a single layer was set up, with what appeared to be a good lumen. A catheter had been passed down into the stomach, and the upper end was pulled up through the blind pouch before the anastomosis was established.

Immediately after the operation, Dr. Burke passed a cystoscope into the stomach, grasped the catheter, and pulled it out through the gastrostomy opening. A string was tied to it, pulled up through the mouth, and then threaded through the nose so that we had a double strand of silk running from the nose to the outside of the gastrostomy.

On May 15, 1957, a retrograde dilatation with a No. 12 dilator was carried out. On May 20, 1957, in an attempt at a retrograde dilatation, a No. 12 retrograde catheter pulled up easily. However, as the No. 14 was being pulled up, there was a sense of resistence, and the string became disengaged from the dilator. Thereupon, the dilator was pulled out through the gastrostomy opening, and the gastrostomy tube was reinserted. We planned to carry out dilatations from above, from then forward.

The patient was seen again on March 25, 1959, because of difficulty with swallowing and with aspiration. An area of constriction was seen at the site of the old anastomosis and repair. The opening appeared quite small. The opening was described at being perhaps ¼ inch in diameter and would admit a No. 16 French dilator. Dr. Updegraff, who carried out this esophagoscopy, felt that it might be dangerous to dilate the opening from above, and recommended that a new gastrostomy be set up. (The gastrostomy tube had been removed some months previously when the patient returned, having no trouble with swallowing but with maggots present around the tube.)

Dr. Updegraff passed a fine plastic feeding tube through the constriction into the stomach, so the string could be attached to it and brought up through the esophagus. Thereupon, I immediately set up a new gastrostomy. This gastrostomy was done on March 15, 1959, and on March 31, 1959, we attempted a retrograde dilatation. Following this dilatation, the patient had abdominal pain, developed leukocytosis, and had signs of peritonitis. We felt that we undoubtedly had torn the gastrostomy loose from the abdominal wall. The patient was reoperated, and a separation of the stomach from the abdominal wall was noted. A Pezzar catheter was placed in the stomach, and the stomach was again brought against the abdominal wall.

Retrograde dilatations were later carried out in the usual manner.

The patient's fourth admission was on February 28, 1960, when a foreign body was removed from the esophagus. He has had other dilatations from time to time, first with the retrograde dilators and then with the Hurst dilators. His latest admissions have been for dental work.

Case 4. K. H. was born on April 27, 1953, and was operated on April 29, 1953, being slightly over one day of age at the time of the surgery. Her birth weight was 6 lbs., 5 oz., and her condition was recorded as fairly good.

Lipoidal was used to demonstrate the upper blind pouch, and air was shown in the stomach, indicating that we were probably dealing with a "Type A" atresia of the esophagus, with tracheoesophageal fistula.

An anastomosis was carried out by means of an extrapleural approach through the fourth rib bed. The lower segment lay quite high up on the trachea, opposite the upper pouch. The lower segment was separated from the trachea, and the fistula was closed with about four sutures of 0000

TABLE 2

CONGENITAL ATRESIA OF THE ESOPHAGUS—ANALYSES OF 21 CASES

Case No. Initials Year	Sex	Birth Weight	Age at Diagnosis	Result Living	Result Dead	Gastrostomy	Complications	Additional Operations	Time in Hospital	Cause of Death
No. 1 T. H. 1947	M	....	....	X		Yes	Strictures	Retrograde dilatations	....	
No. 2 N. L. 1949	F	....	4 days	X		Yes	Pneumonia Stricture	Retrograde dilatations	....	
No. 3 D. M. B. 1952	M	....	48 hours		X		Aspiration pneumonia cyanotic	Tracheotomy before repair (operated in extremis 3 days after admission)	4 days	Pneumonia
No. 4 D. K. McF. 1953	M	7 lbs.	16 hours		X	Yes	Leak, Empyema, Pneumothorax	Tracheotomy tube to relieve pneumothorax	11 days	Leak, Empyema
No. 5 K. D. H. 1953	F	6 lbs. 5 oz.	24 hours	X		Yes		Retrograde dilatations, Repeated esophagoscopies for removal of foreign bodies stuck in the esophagus starting at about 1½ yrs. of age	33 days	
No. 6 M. W. G. 1953	M	5 lbs. 12½ oz.	2 days	X		Yes	None		20 days	
No. 7 R. J. H. Feb., 1956	F	7 lbs. 1½ oz.	13 hours		X	Yes	Recurring T. E. F. Atelectasis	Attempted repair of Recurrent T. E. F.	64 days	Terminal massive aspiration of food, atelectasis pneumonia, persistent T. E. F.
No. 8 R. M. F. June, 1956	F	....	1 day		X	Yes	See cause of death		3 days	Necrosis of anastomosis site. Empyema, mediastinitis, acute pulmonary edema
No. 9 E. M. B. July, 1956	F	7 lbs. 9½ oz.	....		X	Yes	None		15 days	Late death due to infantile coarctation of the aorta
No. 10 D. B. S. March, 1957	M	5 lbs. 3¾ oz.	2 days	X		Yes (2)	Strictures of the esophagus, Breakdown of the 2nd gastrostomy	Reoperation for stricture, Repeated dilatations, Esophagoscopies for foreign bodies	78 days	

No. 11 D. D. B. July, 1957	M	4 lbs. 7 oz.	48 hours	X		Yes	None	None	16 days	
No. 12 S. R. W. March, 1958	F	4 lbs. 5½ oz.	24 hours		X	Yes	Pyloric stenosis Duodenal adhesions	Ramstedt pyloromyotomy, Division of duodenal adhesions, jejunostomy	17 days	Marked broncho-pneumonia
No. 13 D. S. May, 1958	F	5 lbs. 12 oz.	12 hours		X	No	Stricture Recurrent T. E. F.	Esophagoscopy, gastrostomy, attempted passage urethral catheter up esophagus, attempted closure of recurrent T. E. F.	10 days 51 days	Empyema, tracheo-pleural fistula, Pseudomonas auroginosa pneumonia
No. 14 K. W. K. March, 1959	M	4 lbs. 10½ oz.	1 day	X		Yes	Stricture	Repeated dilatations	55 days	
No. 15 T. L. E. June, 1959	M	7 lbs. 10 oz.	28 hours	X		No	None	Occasional prophylactic dilatations	14 days	
No. 16 S. J. K. Dec., 1959	M	7 lbs. 7 oz.	3 days	X		No	None		13 days	
No. 17 D. R. P. Oct., 1960	M	6 lbs. 12¾ oz.	24 hours	X		No	None	Occasional prophylactic dilatations		
No. 18 T. S. F.	F	5 lbs. 12½ oz.	2 days	X		Yes	Stricture, pneumothorax	Thoracotomy tube for release of pneumothorax and drainage from leak. Esophagoscopy and introduction of string into stomach for retrograde dilatations	86 days	
No. 19 T. W. S. Nov., 1960	M		24 hours	X		No	Severe tracheobronchitis	Tracheal aspirations, Tracheotomy, reinsertion of tracheotomy tube, prophylactic dilatations	43 days	
No. 20 S. L. S. May, 1961	F	6 lbs. 3 oz.	40 hours		X	Yes	Leak	Drainage of secretions	7 days	Empyema
No. 21 C. L. F. July, 1961	F	5 lbs. 13 oz.	12 hours	X		No	Congenital deformity of thumb	Amputated nubbin of thumb	14 days	

silk. We set up a partial two-layer anastomosis, using the muscular attachment of the two segments anteriorly.

On about the fifth postoperative day, a gastrostomy was done because x-rays had suggested the possibility of a slight leak. A No. 12 catheter was threaded through the pylorus into the duodenum, and a No. 24 Pezzar catheter was threaded over this catheter in such a way that it could be used in setting up the gastrostomy for dilatations, with the tube passing through it into the duodenum for feeding. The baby was hospitalized for a period of 33 days.

She had a number of retrograde dilatations, and then on July 3, 1953, the gastrostomy tube was removed. The barium swallow showed no evidence of obstruction. Afterward, the child was admitted on a number of occasions because foreign bodies had lodged in the esophagus near the anastomosis line. The first admission was on October 5, 1954, at which time Dr. Updegraff first removed about 6 inches of string, and then removed tissue which appeared to consist of meat and paper. Further inspection showed a button ¾″ in diameter, which was completely plugging the esophagus. The child was admitted again on February 23, 1955, at which time Dr. Updegraff removed some string and then a segment of sponge rubber having a diameter somewhere between those of a quarter and a half dollar, and also several food particles. The child was admitted again on May 26, 1955, with a complete obstruction of the esophagus at the aortic arch. On that occasion, Dr. Updegraff removed a large stone by means of a basket forceps.

The child was last seen for removal of foreign bodies on August 10, 1955, when some paper and some cellophane were taken from her esophagus. These materials were wadded together to make a packing at least 1½ in. long by ¾ in. wide.

It is interesting to note that the examination of the esophagus on each of these occasions showed no definite evidence of obstruction from other causes. On a number of occasions following removal of the foreign body, the esophagoscope was passed without any difficulty down the esophagus.

It is our feeling that because of the repair, this child probably has a disturbance in the swallowing mechanism sufficient to allow these foreign bodies to become impacted in the region of the anastomosis, whereas in a normal child these articles would probably be carried on into the stomach without being detected.

Case 5. T. W. S. was born on November 27, 1960, and 24 hours after his birth he was brought to the hospital with a diagnosis of tracheo-esophageal fistula. Gastro-graffin was used to demonstrate the "Type A" abnormality. Surgery was performed on the day of admission, with the usual findings. A very satisfactory anastomosis was established by means of a transpleural approach through the fourth intercostal space. A gastrostomy was felt to be unnecessary.

Following the surgery, the child had considerable difficulty with atelectasis and questionable aspiration into the tracheobronchial tree. A number of direct laryngoscopies brought temporary relief, but as time went on, we felt that the trauma of the aspiration would set up a severe tracheobronchitis, and therefore we decided to carry out a tracheotomy. Dr. Updegraff and I did this on December 5, 1960. On December 23, 1960, the tube was removed, and the tracheotomy had almost healed across. However, on the evening of December 28, 1960, the baby was having considerable difficulty with respiration, and I felt that the tube must be reinserted. I spread the wound in the neck and reinserted the tracheotomy tube. The patient's color immediately improved.

Afterward, we watched the child closely. We dilated his esophagus every three to six weeks. He gradually outgrew his tracheotomy tube, and it was removed April 12, 1962. He tolerated that procedure very well, and has not been seen since his discharge, April 15, 1962.

Case 6. C. L. F. is the patient whom I have operated upon most recently for this anomaly. The operation was carried out on July 24, 1961, 12 hours after the girl's birth. She weighed 5 lbs., 13 oz., and was in good general condition at the time of surgery. The child had one other congenital anomaly, namely a severe deformity of her right thumb, which was present only as a very small nubbin lying along the lateral aspect of her index finger.

A "Type A" deformity was found, and a double-layer, 00000 silk anastomosis was set up through a transthoracic approach in the usual manner. It was felt that a satisfactory anastomosis had been accomplished, and it was not necessary to do a gastrostomy.

An esophogram taken on the fourth postoperative day showed no evidence of obstruction, and the child was fed from that time on. She had absolutely no trouble with swallowing, aspiration or regurgitation of fluids. She was adopted, and she was claimed by her foster parents on August 7, 1961.

I have had word that she is getting along very well. We have tried to make arrangements for routine esophageal dilatations in Davenport, but the family plans to bring the baby to Des Moines for a check-up within a short time.

The only complication in this case was the matter of the thumb. It was decided that there was no point in saving the small nubbin. Therefore, a silk ligature was tied at its base, and it was amputated.

This, then, represents my most recent case, and perhaps one of my most successful ones as far as surgical results are concerned. Of all the patients in the series, she had the least morbidity and fewest complications while in the hospital.

SUMMARY

Twenty-one cases of congenital atresia of the esophagus with tracheo-esophageal fistula have been reported. Some of the difficulties in treating these cases have been documented. In this series, seven of the last eight patients have survived.

The Surgical Treatment of Gastric Ulcer

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Our experience at the Veterans Administration Hospital in Iowa City has confirmed our impression that most patients with chronic gastric ulcer require surgical treatment. Ulcer hemorrhage and perforation, suspicion of cancer, and failure to respond to dietary treatment constitute the chief indications for operation. The results of surgical treatment have been gratifying, and the postoperative death rate has not been excessive.

CLINICAL OBSERVATIONS

During the eight-year period 1952 to 1960, a total of 172 patients were treated for benign gastric ulcer. During the same period, 73 patients were treated for gastric cancer. In many patients with bleeding, perforation, etc., gastrointestinal barium studies were not performed, and in many additional patients they were inconclusive. Of the 245 patients with ulcer or cancer, 88 had ulcerative lesions seen on x-ray. Thirteen of the 88 ulcers were cancerous. Thus, approximately one of each seven gastric ulcers seen on x-ray (15 per cent) proved to be cancerous.[1] This observation is significant because differentiation of cancerous from benign ulceration is frequently impossible. Numerous reports in the literature indicate diagnostic errors ranging from 3 to 29 per cent.[2, 3, 4] Gastric acid levels were normal or high in about three-fourths of the patients with benign gastric ulcer. Acid was diminished or absent in the remaining one-fourth. Opposite results were found in gastric cancer patients. Three-fourths had absent or low acid, and one-fourth had normal or high levels. X-ray[5] and gastroscopic[6] examinations were usually accurate if the lesions were visualized, but errors were frequent enough to prevent our relying upon these examinations in any given patient. The best indication of benignancy of gastric ulceration was found to be the patient's response to careful dietary management during a four-week period of observation. If symptoms were relieved and if the ulcer healed radiographically during the intensive treatment period, the ulcer was usually benign.[7]

The hospital experience would indicate a fairly consistent attitude of all services toward the treatment of gastric ulcer. The medical service was as inclined toward surgical therapy upon appropriate indication as was the surgical service. The surgical staff, like the medical staff, found indications for surgical therapy in the majority of the patients with benign gastric ulcer (Table 1). Our experience to date indicates that most patients with chronic benign gastric ulcer do not respond favorably to *conservative* treatment with diet, antacids, etc. Failure of ulcer-healing with non-surgical treatment constituted the most frequent indication for operation.[8]

Bleeding was the second most common indication for the operative treatment of gastric ulcer. Several of the patients suffered massive bleeding from erosion of large branches of the right or left gastric arteries on the lesser curvature of the stomach. In such individuals, the added risk of gastric resection in a depleted patient with continuing hemorrhage had to be accepted. Gastric ulcers may bleed as severely as duodenal ulcers which erode the pancreaticoduodenal artery. They require the same degree of energetic and discriminating treatment directed toward blood replacement and proper timing of the operation. The patient should undergo operation when he is out of shock and stabilized, and before the shock state recurs. Operation during shock becomes necessary only when rapid hemorrhage continues.

TABLE 1
TREATMENT OF BENIGN GASTRIC ULCER
(172 Patients, 1952-1960)

125 Patients Admitted to Medicine		47 Patients Admitted to Surgery	
55 Operated Upon		41 Operated Upon	
Failure of healing	28	Bleeding	17
Bleeding	17	Intractable	10
Questionable cancerous	6	Questionable cancerous	6
Persistent pain	2	Obstruction	4
Gastric polyps	1	Perforation	3
Fistula (gastrocolic)	1	Possible perforation	1
70 Not Operated Upon		6 Not Operated Upon	
Ulcers healed	38	Ulcers healed	5
Died before treatment	9	Died before treatment	1
Refused operation	8		
Operation not advised	15		

Indications for surgical treatment were found in 103 of the 172 patients with benign gastric ulcer. Ninety-six of these patients were operated upon. Ulcer healing made surgery unnecessary in only 44 of the 172 patients.

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The method of treatment of gastric-ulcer perforation is either ulcer closure by suture or gastric resection, depending upon circumstances peculiar to the individual patient. If the operation is early after perforation, if peritoneal contamination is not excessive, if the patient's general condition appears to permit it, and if there is another valid reason for choosing it, gastric resection is preferred. The "other valid reason" may be recent hemorrhage, intractability to dietary management, previous perforation, pyloric obstruction or a suspicion that the ulcer is cancerous.

The surgical procedures carried out and the results of operation in 96 patients with chronic benign gastric ulcer are shown in Table 2.[9] There were seven postoperative or hospital deaths in these patients. (Thirty-nine patients with gastric cancer were treated. Total gastrectomy was performed in six, partial gastrectomy in 24, and gastroenterostomy in nine during the same period, 1952-1960. There were six operative deaths in the gastric carcinoma patients, producing a mortality rate of 15 per cent.)

It is of interest that before surgical treatment could be carried out, 10 patients died from complications of benign gastric ulcer or from unrelated causes (e.g., coronary occlusion, cardiac failure, cerebrovascular accident). No patient was denied an operation because he was a poor surgical risk, e.g., because of hemorrhage or coexisting cardiac or pulmonary disease. Therefore, several patients who were subjected to operation were nearly moribund because of continuing massive hemorrhage. It is pertinent to an analysis of the postoperative death rate to note that all of the seven deaths occurred following emergency procedures for massive bleeding (six) or ulcer perforation (one). The seven patients who died following surgery had been treated by gastric resection, except for one patient (F. B. No. 37142) in whom arterial ligation only had been performed. With one exception (L. E. No. A 4031, age 51), all of the patients who died postoperatively (from two to 120 days after operation) were men in their sixties or seventies.

The results of surgery for gastric ulcer were *good* in 49 patients. These patients ate general diets, were free of pain and indigestion, and considered their weights to be normal or satisfactory. The results were *fair* in seven patients. These individuals complained of mild dyspepsia (except for two patients who had symptoms following closure of ulcer perforations, and who subsequently were relieved of their symptoms following gastric resection). The results were considered *poor* in four patients who showed significant weight loss and pain, or dumping syndrome. Adequate follow-up data were not available on 27 patients. It is our impression that complete satisfaction with the results of surgical treatment is more frequent in patients with gastric ulcer than in patients with duodenal ulcer.

The results of surgical treatment of benign gastric ulcer in this group of patients are sufficiently good so that there is little justification for withholding surgical treatment in any patient with an indication for operation, provided that he is a reasonable operative risk.

TABLE 2

RESULTS OF SURGICAL PROCEDURES IN BENIGN GASTRIC ULCER

(96 Patients, 1952-1960)

Procedure	Results					
	Good	Fair	Poor	Died Post-operatively	Not Followed	Total
Hofmeister	24	3	3	3	13	46
Billroth I	15	1	1	1	10	28
Polya	7	3	0	2	1	13
Subtotal En-Y	1	0	0	0	2	3
Peforation Closure	1	2*	0	0	0	3
Vagotomy, Pyloroplasty	0	0	0	0	1	1
Left Gastric A. Ligation	0	0	0	1	0	1
Negative Exploration	1	0	0	0	0	1

* These two patients subsequently underwent gastric resection.

There is no statistically valid indication in this series that any particular variety of reconstruction after gastric resection yields superior results. The postoperative death rate of gastric resection in this series was 6.7 per cent. All of these deaths occurred in patients in whom emergency gastrectomy was indicated because of massive hemorrhage or free perforation (one patient). In an additional apparently-moribund patient (F. B. No. 37142), left gastric arterial ligation without gastric resection did not prevent death.

SUMMARY

1. One hundred seventy-two patients with chronic benign gastric ulcer were treated during the years 1952-1960. Surgical treatment was advised in 103 of those patients.

2. Ninety-six of the 103 patients were treated surgically, with a postoperative mortality of 7 per cent. The seven deaths occurred in poor-risk patients in whom emergency surgery was indicated because of exsanguinating hemorrhage (six) or free perforation (one).

3. The unfavorable results of dietary management and the favorable results of surgical treatment justify the early consideration of operative treatment in all patients with chronic gastric ulcer.

BIBLIOGRAPHY

1. Zollinger, R. M., and Stewart, W. R. C.: Surgical management of gastric ulcer. J.A.M.A. **171**:2056-2059, (Dec. 12) 1959.

2. Kirsner, J. B., Clayman, C. B., and Palmer, W. L.: Problem of gastric ulcer. AMA Arch. Int. Med., **104**:995-1020, (Dec.) 1959.

3. Welch, C. E., and Allen, A. W.: Gastric ulcer; study of Massachusetts General Hospital cases during 10-year-period 1938-1947. New England J. Med., **240**:277-283, (Feb. 24) 1949.

4. Hayes, M. A.: Gastric ulcer problem. Gastroenterology **29**:609-620, (Oct.) 1955.

5. Scott, W. G., Loitman, B. S., and Swanson, M. A.: Problems for radiologist in diagnosis of gastric ulcer. J.A.M.A. **171**:2048-2053, (Dec. 12) 1959.

6. Klotz, A. P., Kirsner, J. B., and Palmer, W. L.: Evaluation of gastroscopy. Gastroenterology, **27**:221-226, (Aug.) 1954.

7. Woodward, E. R.: Peptic ulceration of stomach and duodenum. Surg. Clinics North America, **39**:1195-1204, (Oct.) 1959.

8. Larson, N. E., Cain, J. C., and Bartholomew, L. G.: Prognosis of medically treated small gastric ulcer I. Comparison of follow-up data in two series. New England J. Med., **264**:119-123, (Jan. 19) 1961.

9. Comfort, M. W., *et al.*: Small benign and malignant gastric lesions. Surg., Gynec. & Obst., **105**:435-448, (Oct.) 1957.

Modern Otologic Surgery: Who Can Be Helped?

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TREMENDOUS CHANGES have taken place in ear surgery in the past 10 years. They have come about primarily because of the use of new and revived technics, the operating microscope, antibiotics, and small precision instruments. Changes have taken place not only in the surgery to improve hearing in patients with otosclerosis, but also in the surgical removal of disease and in the reconstruction of the tympanic membrane and middle-ear transmitting mechanism. Reconstructive surgery is not applicable to every patient with ear disease, but when properly used in selected patients, the results are very encouraging. This type of surgery has advanced so rapidly that most textbooks on the subject are partially obsolete by the time they are printed.

OTOSCLEROSIS

The most dramatic successes have occurred in in the treatment of otosclerosis. Histologic otosclerosis is a very common entity, affecting about 14 per cent of the population.[1] It consists of areas of otospongiosis in the labyrinthine capsule. If one of these foci impinges on the stapes footplate, the footplate motion will be limited as though it were cemented in place, and a conductive defect will result (Figure 1). Fortunately only about one eighth of the people who have histologic otosclerosis have it in the footplate area and consequently exhibit clinical otosclerosis.

Otosclerosis, then, decreases hearing by mechanically interfering with the transmission of sound to the inner ear. In addition, it may affect the cochlea, causing spiral-ligament atrophy, with secondary rupture of the basilar membrane.[2] This inner-ear involvement occurs to varying degrees, and becomes the main limiting factor in the surgical treatment of otosclerosis. One can correct the mechanical conductive factor if one removes the stapes and replaces it with a small "plug" made from stainless steel wire and either a piece of ear-lobe fat[3] or a piece of vein[4] (Figure 2). Correcting the mechanical or conductive loss with this prosthesis can result in normal hearing if the inner ear is normal and unaffected by otosclerosis. Patients with superimposed inner-ear damage may obtain socially adequate hearing after surgery, or they may merely be able to use a hearing aid more effectively. Their potential hearing capaciy is limited by the level of the inner-ear loss. Stapedioplasty, then, has become a dependable and widely accepted method for the treatment of clinical otosclerosis.

EAR FLUID

Another area of otology in which recent advances have taken place is the management of middle-ear fluid. Whenever the eustachian tube

Figure 1. A view of the middle ear showing otosclerosis involving the footplate and anterior crus of the stapes.

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Figure 2. The fixed stapes has been removed and removed and replaced by a fat-plug prosthesis.

becomes obstructed from blockage of any kind, the oxygen in the middle ear is absorbed, creating a vacuum which in turn causes a transudate to fill, or partially fill, the middle ear. The fluid, in turn, interferes with the transmission of sound to the inner ear, and consequently produces a conductive type of hearing loss. The fluid of a thin transudate will usually leave when eustachian-tube function has been reestablished, but an exudate which has been produced by an inflammatory reaction, whether treated with antibiotics or not, will usually not leave by itself. It is necessary to perform a myringotomy and aspirate the thick mucous exudate in order to restore the hearing.

When eustachian-tube obstruction results repeatedly, more vigorous therapy is indicated. If the obstruction is from adenoid hypertrophy or regrowth of lateral adenoid tissue, a careful and complete adenoidectomy should be performed. In the majority of patients this is all that is necessary.

The eustachian tubes of patients with allergic and metabolic problems frequently do not function properly, even after appropriate investigation and treatment of their underlying problems. In these patients it has been necessary to perform myringotomies, to remove the fluid, and to insert small polyethylene[5] or vinyl tubes through the myringotomy sites (Figure 3). The function of the tube is not to allow fluid to drain out, but rather to prevent the formation of fluid by equalizing the pressure and preventing a vacuum. In effect, it serves as an artificial eustachian tube. The myringotomy and tube insertion have been performed under local anesthesia in selected children as young as seven years, but in less-cooperative patients they are better performed under general anesthesia. The tubes may remain in place indefinitely, but are usually extruded and need to be replaced periodically. Where indicated, it is extremely important for tube insertion to be done early in the course of the problem, for once the tympanic membrane is permanently retracted and extensively scarred to the promontory, the tubes will not be effective in creating and maintaining a middle-ear cleft.

TYMPANIC MEMBRANE PERFORATIONS

Tympanic membrane perforations can now be closed. Patients with dry perforations are particularly good candidates for appropriate office or surgical closure. The reason perforations stay open is that in healing, the outer squamous layer has become attached to the inner mucous-membrane layer. This junction must be removed and the edges stimulated to close. For small perforations, this is most readily accomplished by cauterizing this junction with 50 per cent trichloracetic acid and by placing a patch of cigarette paper or polyethylene sheeting over the perforation. The paper or plastic merely forms a scaffolding to guide the squamous epithelium in its natural attempt to close the perforation. It is frequently necessary to repeat this procedure several times before complete closure takes place. Larger perforations are more effectively closed by removing the junction of squamous epithelium and mucous membrane, and by placing a graft of vein[6] or temporalis fascia in the middle ear so as to overlap the perforation (Figure 4.) Not only does the graft then form a scaffolding for the closure, but the elastic fibers of it appear to remain and to strengthen the closure. Very large perforations are better closed by using skin from the external auditory canal to rebuild the entire tympanic membrane.[7] Even totally-rebuilt tympanic membranes in time appear almost normal when this method has been used.

TYMPANOPLASTY

Although the surgery of chronically draining ears has changed somewhat, the total removal of all infected tissue still remains the basis of successful surgery. In selected patients, however, this can be followed by reconstruction of the hearing mechanism, either in the same operation or in a subsequent procedure. This is called a tympanoplasty. In it, the tympanic membrane may be rebuilt, using a full-thickness skin graft from the

external canal or the post-auricular area. Occasionally it is necessary to use a split-thickness graft from the upper arm or thigh. At times temporalis fascia or vein can be used for this purpose, but it merely acts as scaffolding for squamous epithelium to grow across. The newly-created tympanic membrane can be attached to the head of the stapes if, as is frequently the case, the incus has been partially destroyed by infection. Alternatively, a piece of plastic tubing can be used to conduct sound from the tympanic membrane to the stapes. Every case presents special problems, and each problem must be evaluated individually if the optimal hearing result is to be obtained through this type of surgery.

MUSCULOPLASTY

The large cavities frequently present after mastoid surgery can now be obliterated by means of muscle and subcutaneous tissue in cases where it is safe to do so. A normal or slightly enlarged canal is left, rather than a large cavity needing periodic care. This technic is called partial musculoplasty. At times, a complete musculoplasty is performed, leaving only a dimple for an external auditory canal. Needless to say, extreme care is necessary in the selection of patients for these obliterative procedures.

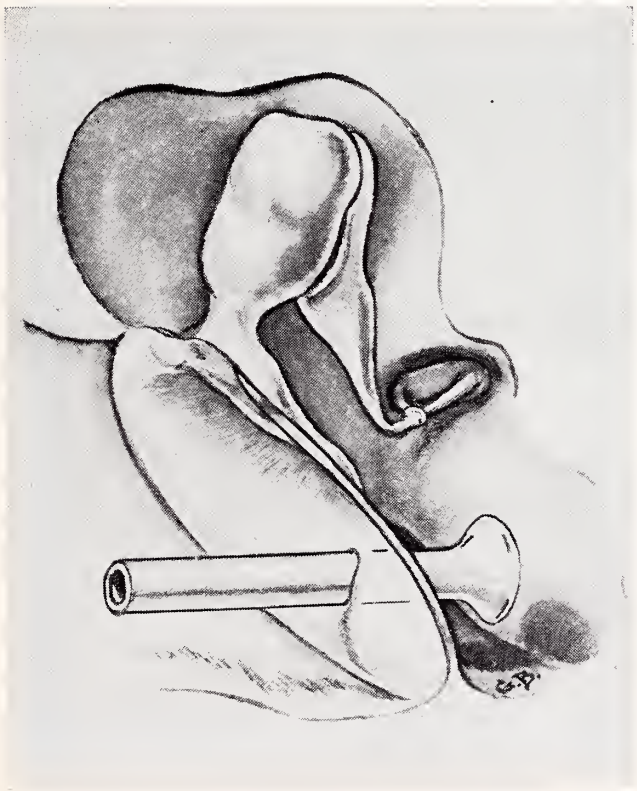

Figure 3. A flared polyethylene tube has been placed through the tympanic membrane to prevent a middle-ear vacuum.

DISCUSSION

With these new technics, together with the wonderful magnification of the operating microscope and the new minute precision instruments that are used with it, microsurgery of the ear has become well established, and the number of patients who can benefit from it is substantial. The problem, for the practicing physician, then, is to determine which patients can be helped and which ones cannot.

Although each patient must be carefully evaluated to determine whether he or she can be expected to benefit from otologic surgery, there are several guide rules. All patients with perforated tympanic membranes should be evaluated by an otologist to determine whether or not closure of the perforation would be worthwhile. All patients with ear drainage should be evaluated and treated either medically or surgically. The patients who are mostly likely to profit from modern temporal-bone surgery are those who have a defect in the sound-conduction system. These people are readily detected, in spite of the normality of their tympanic membranes, by the use of a 512-cycle-per-second tuning fork. Such patients hear the tuning fork better by bone conduction than they do by air conduction, whereas people with normal hearing and people with nerve damage hear the tuning fork better by air than they do by bone. This is the Rinne test (Figure 5).

All these people should be carefully evaluated

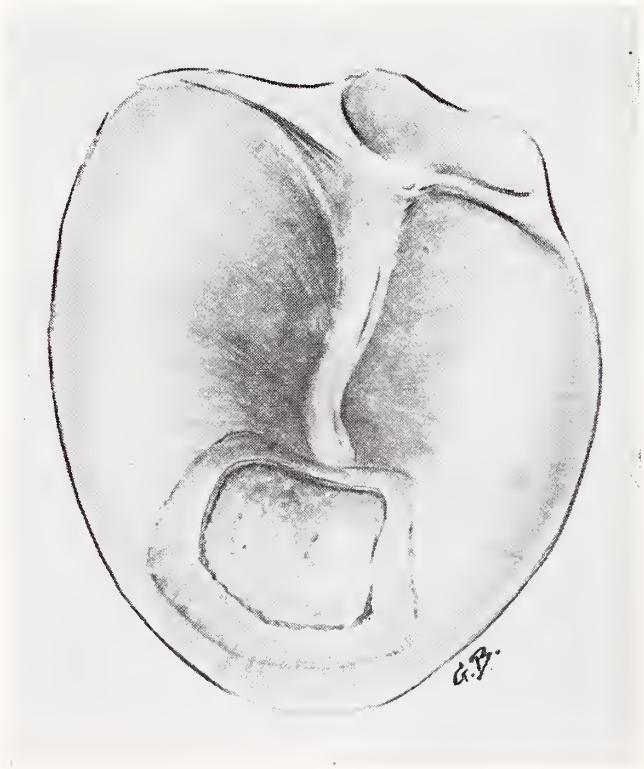

Figure 4. Vein graft myringoplasty. The vein graft can be seen on the under surface of the prepared tympanic membrane.

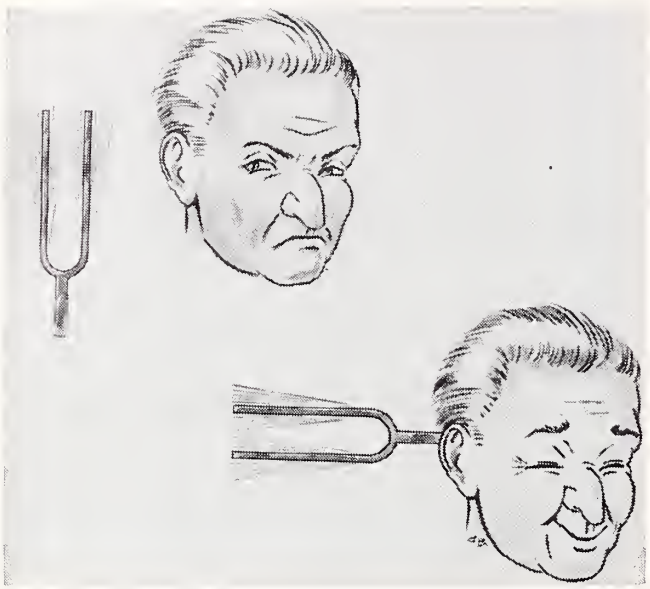

Figure 5. The Rinne test. Patients with a conductive type of hearing loss hear the 512 cps. tuning fork better by bone conduction than they do by air conduction (after Sheehy).

by an otologist. Most of them can be helped by modern otologic medical or surgical care.

SUMMARY

1. Microsurgery of the ear has entered a new era in the treatment of ear disease and hearing disorders.

2. An otoscope and a 512 cps. tuning fork are adequate in most cases, in determining which patients are likely to be helped by surgery.

REFERENCES

1. Guild, S. R.: Histologic otosclerosis. Ann. Otol. Rhin. and Laryng., **53**:246-266, (June) 1944.
2. Benitez, J. T., and Schuknecht, H. F.: Otosclerosis: human temporal bone report. Laryngoscope **72**:1-9, (Jan.) 1962.
3. Schuknect, H. F., McGee, T. M., and Colman, B. H.: Stapedectomy. Ann. Otol., **69**:597-609, (June) 1960.
4. Kos, C. M.: Vein plug stapedioplasty for hearing impairment due to otosclerosis. Ann. Otol., **69**:559-570, (June) 1960.
5. Armstrong, B. W.: Chronic secretory otitis media: diagnosis and treatment. Southern Medical Journal, **50**:540-546, (Apr.) 1957.
6. Tabb, H. G.: Closure of perforations of tympanic membrane by vein grafts. Laryngoscope, **70**:271-286, (Mar.) 1960.
7. House, W. F., and Sheehy, J. L.: Myringoplasty; use of ear canal skin compared with other techniques. Arch. Otolaryng., **73**:407-415, (Apr.) 1961.

Current Treatment of Depression

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THERE HAS BEEN more progress in the treatment of depression, during the past 25 years than in all the history of man prior to that time. When Meduna discovered the usefulness of convulsions in the treatment of depressions, in 1935, he gave the psychiatrists their first truly effective tool in the treatment of severe depression. Since that time his method has proved of tremendous value, and has helped relieve the suffering of tens of thousands of people. Paradoxically, it worked more effectively in the severely depressed patients than it did in the mildly depressed ones, and consequently its usefulness was mostly in hospital situations, and for the most part the office treatment of this condition remained largely ineffective, aside from the use of a few mildly effective drugs.

More recently, however, progress in psychopharmacology produced the first specific and truly effective drugs for depression. The first of these was iproniazid, which demonstrated the possibility of the effectiveness of amine-oxidase inhibitors. This drug has been superceded by a number of other more effective, safer amine-oxidase inhibitors which are on the market today. This group appears to work by the potentiation of serotonin. In addition to this group, there are other drugs chemically resembling tranquilizers which have also proved effective. These drugs for the first time have brought the effective treatment of most depressions into the office, where it belongs.

Dr. Norris is an associate professor of psychiatry at the State University of Iowa, College of Medicine. He made this presentation to the Spring Postgraduate Conference of the Iowa Chapter of the American Academy of General Practice at Lake Okoboji, in 1961.

DRUG TREATMENT

In spite of the importance of the new discoveries, the older drugs still have their place, particularly in very mild depressive or fatigue states. These drugs have the advantage of a more rapid action and can be used in combination wtih other slower-acting anti-depressants. It must be emphasized that these drugs are effective only in the mild depressions, however, and seldom have an effect in the moderate or severe cases.

The newer drugs have proved effective in all types of depression and are quite safe when used with discretion. The most pertinent drawback to the use of these anti-depressants is their slow action. They can take from two to four weeks to work, and in a depressed patient where suicide is

a problem, their use very often presents an unwarranted risk, and the patient requires hospitalization. Considerable research is being carried out at the present time on newer drugs and different methods of administration to speed up this action. A more rapid action is claimed for most of the newer drugs.

Table 2 contains a summary of the drugs currently on the market.

The dosage can be raised considerably within a few days. Raising the dose even higher than the amounts shown in the table may produce more rapid results, but will also produce a good many side effects. The dosage should be cut down as soon as a therapeutic response has been achieved, but the drug may have to be continued for anywhere from one to three months, or even longer. As time goes on, the maintenance dose can usually be lowered.

One should expect a delayed action. Improvement is not usually seen before 10 days, and it may be imperceptible for as long as a month. It has been reported that Parnate and Monase work more quickly than the other drugs. However, even with one of these two, a trial period of two to three weeks is recommended before the drug is regarded as a failure. One must remember that in the delay of response lies the risk of suicide in some patients. When a suicide risk is evident, the patient should be in a hospital and probably should receive electrotherapy.[1] The older drugs such as amobarbital (Amytal) and amphetamine sulfate (Benzedrine) or dextro amphetamine sulfate (Dexamyl) can be used simultaneously with the other drugs to lessen the depression during the intervening period while the more potent antidepressants are taking effect.

COMPLICATIONS

As with any other potent drugs, one can expect a good many side effects and some complications. In this group these are quite frequent, but fortunately they are rarely serious. The following chart represents most but not all of the common complications that may occur with this group of drugs.

Anti-cholinergic effects are tachycardia, dry mouth, constipation and blurring of vision. The behavioral symptoms as one might expect are primarily those of excitement. These tend to occur during the first few days of administration, but then usually pass off. They can be modified by the simultaneous administration of a barbiturate or a tranquilizer. Although complications of liver and blood have been quite rare, and with some drugs none have been reported, these nevertheless are agents which chemically are capable of producing such effects, and one should always do routine liver-function studies and blood studies before and during their administration.

TABLE 1
OLDER DRUGS EFFECTIVE IN THE TREATMENT OF MILD DEPRESSIONS

Generic Name	Trade Name	Dosage	
Amobarbital sodium	Amytal sodium	60 mg., t.i.d.	in combination
Amphetamine sulfate	Benzedrine	5 to 10 mg., t.i.d.	in combination
Dextro amphetamine sulfate	Dexedrine	5 mg., t.i.d.	
Methamphetamine hydrochloride	Methedrine	2.5 to 5 mg., t.i.d.	
Methylphenidate hydrochloride	Ritalin	5 to 10 mg., b.i.d.	
Pipadrol hydrochloride	Meratran	2.5 mg., b.i.d.	
Dextro amphetamine sulfate and amobarbital	Dexamyl	½ to 1 tab., t.i.d.	

TABLE 2
NEWER DRUGS EFFECTIVE IN THE TREATMENT OF ALL DEPRESSIONS

	Generic Name	Trade Name	Initial Dosage	Maintenance
Amine Oxidase Inhibitors	Phenelzine dihydrogen sulfate	Nardil	15 mg., t.i.d.	15-75 mg./day
	Nialamide	Niamid	25-50 mg., t.i.d.	75-100 mg./day
	Isocarboxazid	Marplan	10 mg., t.i.d.	10-20 mg./day
	Tranylcypromine	Parnate	10 mg., t.i.d.	10-20 mg./day
	Etryptamine acetate	Monase	15 mg., b.i.d.	15-45 mg./day
	Imapramine hydrochloride	Tofranil	25-50 mg., t.i.d.	50-100 mg./day
	Amitriptyline hydrochloride	Elavil	25 mg., t.i.d.	50-100 mg./day

TABLE 3

SIDE EFFECTS POSSIBLE WITH ANTI-DEPRESSANTS

Drug	Anti-Cholinergic	Behavioral	Hypotension	Liver	Blood
Nardil	Yes	Yes	Yes	?	?
Niamid	Yes	No	Yes	?	?
Marplan	Yes	Yes	Yes	?	Yes
Parnate	Yes	Yes	Yes	?	?
Monase	Yes	Yes	Yes	?	?
Tofranil	Yes	Yes	Yes	Yes	Yes
Elavil	Yes	No	Yes	?	?

SPECIAL PRECAUTIONS AND CONTRAINDICATIONS

Though there are no absolute contraindications to any of these drugs, there are situations in which they must be used with great care, and often one should elect another type of treatment. Tofranil and Elavil should probably not be used, or at least should be used only with great caution, in a case where glaucoma has been present or may be suspected. This danger does not exist with the amine-oxidase inhibitors. The latter group must be used with great care in cardiac patients because they can produce increased activity, and also can relieve the pain of angina or other coronary disease, thereby masking any damage that may actually be going on.

The amine-oxidase inhibitors should not be used simultaneously with either of the drugs from the tranquilizer-like group. Severe complications have been reported from the simultaneous administration of Tofranil and other amine-oxidase inhibitors, and a similar danger must be presumed to exist with Elavil. If one decides to change drugs, he must discontinue Tofranil or Elavil at least a few days to a week before beginning an amine-oxidase inhibitor, and if he wishes to begin either of the latter drugs after having used amine-oxidase inhibitors, then he should wait one to two weeks after discontinuing the first drug.

The presence or the recent history of liver disease indicates a very cautious administration or even the omission of these drugs. Neither Tofranil nor Elavil should be used in the presence or history of renal failure. It must be emphasized that all of these contraindications are relative and not absolute, and at times the risk of not treating the patient would be much greater than the risk of treating him.

PSYCHOTHERAPY

In spite of the effectiveness of the new drugs, psychotherapy has just as great a role in the treatment of depression as it ever had, and now in combination with anti-depressant medication, it can be more effective than previously.

One should recognize that in dealing with a depression, he is probably dealing with a person who has always been rather anxious, somewhat quiet and extremely conscientious. The patient has often had difficulty in forming comfortable relationships with others, and he has tended to blame himself for his own shortcomings and often even for those of others. Thus, one can see that a depression in many ways may be no more than an accentuation of previous personality traits.

Recognizing the type of person he is dealing with, the physician will appreciate how careful and gentle he must be in his efforts to establish rapport. Rapport is simply an understanding and mutual respect between patient and physician, and it must go both ways. The physician must be sure of himself. He should have carried out the necessary diagnostic procedures so that he can reassure the patient. He must be genuinely interested in the patient and must be sensitive to the patient's feelings. It is important that he remain calm and relaxed, and that he neither condone nor condemn anything that the patient may tell him. He must be sincere, but not glib or smooth. He should be direct and firm, but not dictatorial. It is important that he remain objective, and not become excessively involved in or overwhelmed by the patient's feelings and problems.

At the outset, the patient is frightened and mixed up. He is alone, and he feels guilty. Simply having an interested person listen to him and accept what he is saying often affords him great relief. It is best for the doctor to let the patient talk

TABLE 4

SUMMARY OF PRECAUTIONS

1) Glaucoma—No Tofranil or Elavil
2) Cardiac patients—Amine-oxidase inhibitors mask cardiac pain
3) Liver disease—All drugs to be used with caution
4) Renal failure—No Tofranil or Elavil
5) After Tofranil or Elavil—Wait a few days to a week
6) After amine-oxidase inhibitors—Wait one to two weeks
7) Groups 5 and 6 (above)—Never administer together

out his troubles, within the limits of the doctor's time. The fewer the interruptions, the better. The patient should be encouraged to go beyond his symptoms and to discuss his difficulties at home and anything else that may have contributed to his illness.

It is important to let the patient know what is happening. He should be reassured that he is not "insane," and that though the doctor realizes he is very uncomfortable, but feels sure, nevertheless, that he will definitely get well. The doctor should explain physical symptoms in simple physiological terms, and answer the patient's questions in a direct and reassuring manner.

During the first interview it is important for the physician to formulate his own concept of treatment, the medication that will be necessary and the things he thinks the patient should do. He should then go over these points with the patient in great detail. Such a discussion not only clarifies the doctor's own thinking but makes the patient realize that the doctor understands his illness, can explain it and can do something about it.

The patient is often indecisive, has lost his self-confidence and is inclined to withdraw. He needs help and direct guidance. He should be encouraged to continue his normal routine. Bed rest or a trip is seldom helpful, and often aggravates the depression by allowing him more time to ruminate about his troubles. He should continue to work and to carry out his social obligations, even though he may not enjoy them at all. Moderate physical activity should be encouraged, even where it has not been a part of his normal routine. If the patient's social life is minimal, it should be increased. He should visit old friends and carry out activities in which he found security in the past. It is very important that the patient avoid making any big decisions such as divorce or a job change during the course of this illness. The action may be a correct one for him to take, but more often the decision will be made in the light of his depression and will be regretted later on.

SUMMARY

Depressions are a constant responsibility of the practicing physician. Diagnosis and evaluation are of utmost importance, and the danger of suicide must not be forgotten. The "psychic energizers" have provided the family physician with a very effective new tool, but let us not forget the art of medicine for which these patients have the greatest need.

There are few things more gratifying in medicine than contributing to the recovery of a depressed patient.

REFERENCES

1. Norris, A. S., and Clancy, J.: Hospitalized depressions: drugs or electrotherapy? Arch. Gen. Psychiat., 5:276-279, (Sept.) 1961.

2. Adapted from: Psychopharmacology Service Center, National Institute of Mental Health.

AMA's Stand on Dietary Fats

The AMA, through its Council on Foods and Nutrition, approved the concept of modifying the type and amount of fat in the diet as an experimental means of treating hardening of the arteries, in a report published in the August 4 issue of J.A.M.A.

A direct causal relationship between diet or blood fat concentrations and hardening of the arteries has not been proved, the Council said, but it added: "In the light of present knowledge, it appears logical to attempt to reduce high concentrations of cholesterol and other serum lipids as an experimental therapeutic procedure." Indications for modifying dietary fat are hyperchloesteremia and hypertriglyceridemia.

The properties of fats are related generally to the fatty acids they contain, it was explained in the report. Fatty acids are classified as either saturated or unsaturated on the basis of their chemical structures. A saturated fatty acid contains all the hydrogen atoms it can hold, whereas the polyunsaturates contain more than one unsaturated bond in their chemical linkage, and a monounsatured fatty acid has only one unsaturated bond.

"Actually, the terms *animal* and *vegetable* do not distinguish between fats which raise and those which lower serum lipid levels," the Council said. "Both butter and coconut oil can be shown to raise serum cholesterol, whereas corn oil and whale oil can lower it." The terms *saturated* and *unsaturated* also are unsuitable for distinguishing fats which raise or lower fat concentrations, it said, "since neither all saturated fatty acids nor all unsaturated fatty acids are identical in their effects upon serum cholesterol concentrations in man."

The treatment of hypercholesteremia with a low-fat diet is "not effective," the Council said. "The effect of simply reducing fat intake is to lower blood cholesterol concentration but raise blood triglyceride concentration," it explained. Many studies have indicated a close association between elevation of blood triglyceride concentration and coronary-artery disease.

"Increasing the ratio of polyunsaturated fat to saturated fat in the diet is the preferred method for treating the 'usual' hypercholesteremia," the Council said.

Alteration of dietary fat is usually unnecessary in the treatment of obesity, on the basis of current scientific evidence, the Council added. The basic cause of obesity is an intake of calories in excess of what the body needs. Treatment consists of reducing total caloric intake.

The report also discussed the chemistry and metabolism of fats, and other disease situations in which fat modification is indicated.

Clinicopathological Conference

Mercy Hospital, Des Moines

DONALD F. McBRIDE, M.D.
ALFRED N. SMITH, M.D.
NOBLE IRVING, M.D.
FRANK C. COLEMAN, M.D.

CLINICAL HISTORY

Mr. W. L., a 19-year-old white male, was admitted to Mercy Hospital, Des Moines, on December 18, 1960. He was discharged December 23, 1960, was readmitted on January 29, 1961, and died 1½ hours later, January 29, 1961.

Chief Complaint: Enlargement of the thyroid gland.

Present Illness: This patient was a college student. During his preentrance physical examination given at the Student Health Service at the beginning of the college year, an enlargement of the thyroid gland had been noted. Investigation of the history by the physician doing the preentrance physical examination indicated that the enlargement of the thyroid gland had been present for approximately one year. The patient had then been referred to his family physician. The family physician confirmed the enlargement of the thyroid gland and performed a detailed history and physical examination. The patient was asymptomatic. He showed no signs of nervousness and had gained approximately 10 pounds in the preceding 12 months.

Past History: The patient had had mumps, measles, whooping cough and chicken pox as a child, and he had a history of asthma beginning at the age of three years. He also had a history of severe sinusitis. He had received steroids intermittently for approximately 10 years because of asthma, and between the ages of 4 and 12 years he had received irradiation therapy to the head and neck for sinusitis. The amount of radiation he received is unknown. Except for the asthma and the sinusitis, the patient had had no recent illnesses.

Physical Examination: Examination of the head was essentially negative. On the right side of the neck, there was an elevated skin lesion of 1 x 0.6 x 0.5 cm., which was heavily pigmented. The thyroid gland was diffusely enlarged; the gland moved when the patient swallowed. Pulsation of the neck vessels was present on palpation of the thyroid gland, and auscultation over the thyroid gland revealed the presence of a murmur. The thyroid gland was hard, but was not tender.

The chest showed a congenital deformity which was of a pigeon-breast type. Good respiratory excursions were noted, however, rhonchi were heard in both lungs, and they were not affected by coughing.

Examination of the heart was essentially normal. The blood pressure was 110/70 mm. Hg. The pulse rate was 70 per minute.

Examination of the abdomen was essentially negative. No masses were palpable.

The external genitalia were essentially normal for a male of the patient's age. Examination of the neuroskeletal system revealed no significant abnormalities.

Laboratory Studies: On Dec. 18, 1960, a hemoglobin was 14.1 Gm.

On Dec. 19, 1960, a urinalysis revealed an acid reaction; specific gravity 1.021; a trace of albumin; and 2 to 4 red blood cells per high-power field.

On Dec. 23, 1960, acid phosphatase was 3.2 Gutman units (normal: 0.2-3), and alkaline phosphatase was 5.6 King-Armstrong units (normal: 0.6-14).

X-Ray Studies: On December 22, 1960, an x-ray of the chest was reported as follows: "Chest x-rays reveal a narrow heart, and emphysematous lung fields with increased markings throughout the medial lung fields on the left which present the appearance of an inflammatory process."

Clinical Course: An iodine uptake revealed no significant abnormalities. On December 19, 1960, the patient was operated upon. The operative note stated that the right lobe of the thyroid gland was greatly enlarged. The left lobe was of approximately normal size, but it contained a small nodule 0.7 cm. in diameter in the lower portion of the lower lobe.

A sub-total thyroidectomy was performed on the left side, and a hemithyroidectomy was performed. The patient's postoperative condition was satisfactory. On December 21, however, his temperature rose to 104° F., and he complained of headache and malaise. At that time the pulse was 108 per minute, but was strong and regular. The blood pressure was 130/80 mm. Hg. No abnormalities of respiration were observed. The patient was treated with aspirin, combiotic and Decadron. By the following day, his temperature had returned to normal, but his pulse rate was still 100 per minute. On December 23, scattered light wheezes were

noted throughout the lung fields. The patient was afebrile, however, and was discharged on that date.

Second Admission: The patient was readmitted to the hospital on January 29, 1961, for additional surgery. His course between the time of his discharge on December 23, 1960, and his readmission had been uneventful, except for repeated episodes of asthma requiring the administration of steriods. The asthma had been particularly severe on the night of January 28, and he had had great difficulty in breathing. He thought this had had something to do with the "neck trouble."

SUMMARY OF CLINICAL DISCUSSION

Dr. Frank C. Coleman: This patient had a disease which was both surgical and medical in nature. For that reason, we have asked an internist, Dr. Donald McBride, and a surgeon, Dr. Alfred N. Smith, to discuss the case. The only information available to them is that contained in the clinical history which was handed to you when you came into the room.

Dr. McBride will be the first speaker.

Dr. Donald McBride: This patient was a 19-year-old white male whose past history had been unremarkable with the exception of his having had asthma for about 10 years, for which he had been treated intermittently with steroids in unknown or undetermined amounts. A short time prior to his initial admission to this hospital, he had been found to have an asymptomatic enlargement of his thyroid gland.

Apparently, physical evaluation of this patient would indicate that this gland was euthyroid. Of considerable interest in the history is the fact that as a boy of four he had had some x-ray therapy to the head and neck, and it is well known that this might constitute an etiological basis for his thyroid enlargement. That possibility will be discussed later by Dr. Irving.

The fact that this young man was admitted for thyroidectomy and was readmitted five weeks later for further surgery clearly indicates the probability that this gland was malignant. Of some possible relationship is the fact that initially this young man was noted to have a pigmented skin lesion on his neck, and I feel it important to mention in passing that occasionally malignant melanomas of this type and location occur and do metastasize to the thyroid as well as to other glands and regions.

Apparently, the characteristics of this gland preoperatively gave no clue as to the nature of the lesion, and there is nothing in this patient's clinical history to suggest thyroiditis, either acute or chronic. Further, there was nothing that presented in the patient's routine history and physical examination to suggest that his thyroid enlargement was a component of more generalized endocrinopathy or a bizarre endocrine disorder. His urinalysis revealed two to four red blood cells per high-power field. That, indeed, is an abnormal finding but apparently his physician wasn't disturbed by it, for it was not repeated or followed up in any way.

His chest x-ray at the time of his initial hospitalization revealed emphysematous lung fields and a narrow heart, and I presume that this small heart size was consistent with the emphysematous appearance of his chest. Certainly no clinical evidence has been presented which would suggest primary heart disease or adrenal insufficiency. I presume, too, that his small heart size could be considered an apparent change associated with the radiologic appearance of emphysema. This particular chest x-ray was taken postoperatively when the patient had developed a slight temperature associated with headache and malaise, tachycardia, etc. At that time, increased markings were noted in the medial lung fields on the left, and they had the appearance of an inflammatory process which I presume to have been a pneumonitis. This was treated with antibiotics, aspirin and Decadron, but only over a 48-hour interval of time, and subsequently the patient was discharged home.

This would seem to me to have been a rather cursory treatment if the ailment indeed were a true pneumonitis, and yet in the five weeks that intervened between the first and second hospitalizations, he apparently did quite well except for recurrent episodes of his asthma. These apparently required further administration of steroid therapy. Now, it should be noted that at the time of initial surgery on December 19, 1960, the tissue that was removed included one entire lobe and a portion of the other lobe containing a small nodule .7 cm. in diameter. I presume that this presented a picture of papillary carcinoma of thyroid origin and that his readmission five weeks later was, as I stated, for more extensive surgery. Approximately an hour and a half after his admission, after having been noted to be walking around the hospital floor comfortably, he suddenly manifested an episode of stridorous breathing, fell unconscious to the floor and was shortly thereafter pronounced dead. We are not told whether the patient was cyanotic, or whether there was evidence of hemoptysis, etc., at that time.

Therefore, this case presents the discussants with two major problems: (1) the exact nature of the pathologic lesion discovered on original surgery, and (2) the cause of the patient's sudden and unexpected demise, aside from his history of asthma and secondary emphysema.

It seems unlikely that this patient expired as a result of any complications ensuing from the original surgery. Really too much time had lapsed for that, although I suppose that carcinomatous invasion of blood vessels or of the trachea could have produced the acute problem present at this death.

There is the possibility that he had distant metastases, perhaps to a vital area of his brain, but this seems unlikely, in that these carcinomas are not usually so rapidly invasive and metastasizing. The chief area which I consider important in rela-

tion to this man's sudden death is related to his chronic use of steroids. Suppression of the adrenal glands is a well known consequence of such use, but there seems little clinical corroborative evidence of it in this case. It is known that patients on steroid therapy occasionally die suddenly following an injection of adrenalin, but we are not given any reason to believe that such had been the case here. There is no evidence that this young man had developed any diabetes, hypertension, or ulcer-like symptoms as a result of his cortisone therapy. The nature of his death, then, does indeed suggest to me that the terminal event was either cardiac or pulmonary in character.

The possibility that the chronic use of steroids can mask infection is the factor that I want to stress most strongly.

This man's pneumonitis in December and his immediate postoperative course raise in my mind the question that he may have gone on to develop an undetected lung abscess, and that subsequently he may have embolized and have had cerebral abscess formation, or may possibly have developed pulmonary thrombosis with cerebral embolization of thrombus.

Occasionally, under a chronic use of steroids, an undetected pulmonary granulomatous lesion may break down or may erode into a blood vessel, producing sudden pulmonary hemorrhage and death.

Again, as regards the question of masked and undetected infection, I raise the strong possibility that this young man may have had undetected bacterial endocarditis, or more likely, a mild and clinically unrecognizable carditis, probably of viral etiology. In a patient on long-range steroid therapy, the possibility of anyone's detecting such a condition would be particularly slight. My personal belief is that this is the most likely cause of the patient's sudden demise. The possibility that this man had a sudden aggravation of his bronchial asthma as the cause for this sudden death seems unlikely to me. At least it has not been a situation that I have encountered in my clinical experience. One could expect to observe that situation occurring over a longer interval of time.

Before closing my remarks, I should like at least to make the suggestion that extravasation of a large amount of thyroid tissue may have been accompanied by too excessive a removal of parathyroid tissue, producing a hypoparathyroidism that escaped clinical detection in the postoperative period. Perhaps this, along with the effects on calcium metabolism produced by a chronic use of steroids could have produced marked hypocalcemia, with at least the possibility of sudden demise from laryngospasm or something in relation to lowered serum calcium.

When I take all of these points into consideration, the best guess that I can give to account for this terminal situation is that the man had an undetected myocarditis masked by chronic use of steroids, and died a sudden cardiac death.

Dr. McBride's diagnosis: 1. Carcinoma of the thyroid gland. 2. Acute myocarditis.

Dr. Alfred Smith: The subject of our conference this afternoon is a 19-year-old white male with a one-year history of enlargement of the thyroid gland. He was hospitalized for a five-day period in December, 1960, at which time a right thyroid lobectomy was performed for enlargement of the lobe, and a sub-total left lobectomy was carried out because of a nodule in the lower pole. Postoperatively he did well, with the exception that he had a temperature elevation. It was felt that a chest x-ray was indicated, and this was taken. This, coupled with his physical findings, indicated a complication in the left lung postoperatively. Evidently this rapidly subsided, and he was discharged from the hospital. I am certain that his discharge was hastened a bit by the rapidly approaching Christmas holiday. There was no evidence of substernal thyroid during this hospitalization, nor was there evidence of adrenal insufficiency during his hospital course. His past history is significant, first, in that he had had asthma since the age of three years and had been treated intermittently with irradiation to the head and neck from the age of four years to the age of 12 years, the amount of radiation being unknown. On physical examination there was an elevated skin lesion, heavily pigmented, and it was probably congenital, since no mention was made of it further than to state that it was there. There was no history of recent onset. One should remember, however, that the lesion described could have been related to hypofunction of the adrenals, for such is found in Addison's disease, or it could have been a melanoma. It did not seem to cause any particular concern, and the surgery performed apparently was not related in any way to this skin lesion.

This boy was readmitted on January 29, evidently not as an emergency, but rather for an elective surgical procedure which was to be done the following day. During the interval between hospital admissions he had had "repeated episodes of asthma requiring the administration of steroids." It is further pointed out that "the asthma had been particularly severe on the night of January 28 (the evening prior to admission), and he had had great difficulty in breathing." He died suddenly, 1½ hours after admission, while he was still wearing his street clothes and just after he had said goodbye to his father and was returning to his room. It is noted that he fell to the floor with an episode of very noisy breathing and was dead when the house physician arrived.

Therefore, our primary problem is the differential diagnosis of causes of sudden death in this individual, and our secondary problem is identifying the disease that prompted his initial and his second admission to the hospital. Although these factors are related indirectly, I do not believe that his death was directly due to the disease present in his neck.

Under causes of sudden death, I should like to list the most common first, namely, coronary oc-

clusion. Now as a cause of death in this young man, I think, coronary occlusion is unlikely, though certainly possible even at the age of 19 years. From the protocol, I cannot rule it in or out. Supposedly the reduction of cortisone dosage predisposes to clot formation at least in veins.

The second cause of a sudden death such as is described here would be a sudden rupture of a cerebral aneurysm. Again this is a possibility, and the age group is compatible. Also, the noisy respiration could go along with such an incident. Again, I would be unable to rule this in or out, from the protocol.

The third cause is adrenal insufficiency. The death was too sudden, however, without some precipitating factor to start the chain of events in motion, but I believe that adrenal insufficiency is a more likely consideration than the first two possibilities that I have mentioned. I say this because adrenal insufficiency would make a more instructive and more of a cause-and-effect case presentation.

A fourth cause of death could be a pulmonary embolus. This man had no known thromboses, and more importantly, the time interval since surgery was considerably longer than one would expect in a postoperative case of pulmonary embolus. Typically, the interval is from seven to 14 days postoperatively, and the occurrence is related to prolonged bed rest, which this man did not have. Again, however, I feel that a pulmonary embolus would be a sort of anticlimax, and an extraneous complication causing death rather than a part of the chain of sequential events leading up to the patient's demise.

A fifth cause of sudden death that I would like to consider is asthma. Though this is an unusual cause of sudden death, I believe that it may be the precipitating factor in combination with the adrenal insufficiency. The severity of the disease is attested to in the history as well as in the x-ray report of emphysematous pulmonary changes in a man 19 years of age. The severity of his attack, I believe is of significance. It would seem to fit with the anxiety stress occasioned by his returning to the hospital for further surgery. Frequently the severity of the asthmatic's attack is proportional to his psychic upset. This boy was again subject to stress and anxiety as he left his father to return to the hospital room. An "alarm reaction" with a shock and counter shock would be an operative factor here. In the absence of adequate endogenous cortisone reserve and without exogenous cortisone for replacement, a sudden asthmatic attack could indeed be a precipitating factor in an acute adrenal insufficiency reaction.

Certainly this man had adequate reason to have a deficit in endogenous cortisone secondary to previous cortisone administration. Salassa has demonstrated in reviewing 46 records of death in adults, that cortisone administered for more than five days, especially if it has been given until the time of death, results in definite adrenal cortical atrophy. Christy has confirmed these clinical pathologic facts by indirect observations using exogenous ACTH.

We can summarize the several factors that lend support to the asthma and adrenal insufficiency theory: (a) the noisy breathing, an important clue and certainly one that is compatible with a severe asthmatic attack, (b) the "painful life situation" just mentioned (This 19-year-old youth had just bade his father goodbye on the night prior to a second surgical procedure. According to his history, there had been a recent increase in the frequency and severity of his asthmatic attacks.), (c) a recent pulmonary infection during his first hospital stay, and (d) past asthmatic attacks of sufficient severity to produce emphysema.

Infection may have been a factor, the severity of which we cannot satisfactorily assess from the protocol. The corticoid medication in the previous several days could conceivably have masked a very definite bronchitis or even a bronchial pneumonia. I am certain that his preoperative medications would have included rather sizeable doses of cortisone, and if the onset of this asthmatic attack had been deferred for perhaps an hour, this boy would have had sufficient protection to avert the disastrous result.

The review of the final hours of life in patients dying of adrenal insufficiency creates an impression—and it is a factual one—that there are certain characteristics of this attack that differed from previous attacks. Like any other non-fatal episode, it had a suddenness of onset and subsequent physiologic depression that seemed quite out of proportion to the precipitating factor. This factor may have been quite trivial or even indiscernible. One major characteristic that set apart the fatal reaction is the lack of response to therapy, including replacement cortisone therapy. Several years ago, such a case was presented to this group at a staff meeting. There were no known precipitating factors in that lady's final attack, as it was presented at that time. She had a known Addisonian condition, and had made an initially satisfactory response, but then she went into sudden relapse and was dead within moments.

Admittedly this is an unusual final scene in the life of an asthmatic, but we are all conscious of the marked sensitivity to emotional factors in many patients with this disease.

The last disease we shall discuss is a possibility that is even less likely as a cause of sudden death. I am referring to hypoparathyroidism with tetanic or *lingual* spasm. The likelihood of this patient's being hypoparathyroid, with the posterior capsule still remaining on one side, is most unlikely. This type of operation is done quite frequently, and the occurrence of hypoparathyroidism is extremely rare if the posterior capsule is saved on one side. I do not recall ever having seen it happen. These people will, I believe, tend to show the head, face, neck and chest cyanosis that we typically associate with traumatic asphyxia. I have learned independent of the protocol that this man did not show any appreciable amount of cyanosis. Also it is

stated that typically the signs and symptoms of hypoparathyroidism appear within 24 to 72 hours after thyroidectomy. Third, it is extremely rare, as I mentioned previously, to have hypoparathyroidism as a sequel to subtotal thyroidectomy, but I imagine it is possible.

Now a word about this man's primary disease that originally brought him to the hospital. This young man had carcinoma of the thyroid which prompted his subtotal thyroidectomy. In addition he perhaps had lymph nodes which contained metastatic carcinoma, and for this reason he was to have further surgical treatment, or perhaps he had carcinoma in the lobe on the left side, and further surgery was therefore indicated. Here we have the significance of his childhood irradiation to the neck area. It has been noted at the University of Illinois that 71 per cent of a series of patients with carcinoma of the thyroid had had prior irradiation to the cervical areas. The most common form of malignancy is the papillary type, and this occurs in the younger age groups as well as in the older. Pure papillary lesions have no significant I^{131} uptake, and the malignancy spreads to regional lymph nodes but not by distant metastasis. It may occur in combination with follicular carcinoma, however, which does have a limited I^{131} uptake and can metastasize distantly. It is generally desirable to attempt complete extirpation of the malignancy at the time of initial surgery by encompassing the lesion within the surgical field. Because of the slow growth characteristics, surgical treatment of papillary carcinoma of the thyroid is not as radical as the unblocked sections of squamous cell carcinoma of the head and neck. Therefore, it is to be remembered that subsequent multiple procedures for irradication of this slow-growing, slowly metastasizing lesion may often be indicated. The possibility of multiple procedures is further heightened by the fact that at the time of the initial procedure there is no certainty regarding the existence of carcinoma within the thyroid, and even in the hands of a microscopist, a frozen section may yield scant information.

Another hazard, and a predisposing fact in multiple procedures, is the frequency with which multicentric lesions occur, and they are especially difficult when they are large and are found in the lobe opposite to that containing the primary lesion. Eleven per cent of malignancies are said to be multicentric. When we speak of bilateral lobectomies or total thyroidectomy, we are also thinking in terms of total parathyroidectomy. This we all know is more difficult to control and treat than is the lack of thyroid function. Therefore an attempt is made to save the posterior capsule in the region of the parathyroid and the vascular pedicle of the parathyroid. However, previous vascular ligation of the larger vessels may interrupt the blood supply, and atrophy may ensue.

Lymphatic excision, which all agree is limited in a papillary lesion, varies in the amount of limitation from picking out enlarged glands to doing a systematic radical dissection on one or both sides of the neck. Various less-radical procedures have become popular in the treatment of lymphatic extension and are largely replacing the more radical neck dissection. It is recognized that because of the location of the thyroid, the initial glands involved are those in close proximity to the thyroid, the trachea and the esophagus. Likewise if the lower poles are involved, the metastatic spread may be predominantly into the mediastinum rather than into the cervical glands. Therefore it is difficult to stereotype the lymph-node dissection to the situation at hand. It is urged that the fat pads, with their contained lymph nodes immediately behind the lobes of the thyroid, be given special heed if there is any suspicion of carcinoma. Cross lymphatic spread has been reported between the fat pads from one side to the other. I have been surprised by the finding of malignant papillary cells in the most benign-appearing small lymph nodes present in this region. It has been estimated that from 33 to 66 per cent of the papillary carcinomas have lymph-node metastases at the time they first come to treatment. It is further estimated that a third of these are not recognized clinically. Nevertheless, the five-year survival rate in these people is reported as being from 75 to 95 per cent, and the 10-year survival rate is said to be not greatly less than this. Therefore, the modified radical neck dissection—or let us call it the modified neck dissection—tends to save the submaxillary gland structures, commonest sternocleidomastoid muscle, and the spinal accessory nerve with its enervation to the trapezius.

A stronger case exists for total thyroidectomy when the lesion is pure follicular carcinoma or a mixed lesion containing follicular carcinoma. The metastatic lesion will in all probability pick up radioactive I^{131}. This action is increased by the removal of normal thyroid gland. Then the concentration of the later-administered I^{131} is "channeled" to the metastatic lesion if there is no competing normal thyroid-gland uptake. A highly undifferentiated carcinoma, the pure papillary carcinoma, the Hurtle cell carcinoma and the squamous types will not act as functioning thyroid and will not pick up I^{131} even with the use of thyroid-stimulating hormone.

External roentgen therapy also has its best effects following surgical removal of all possible and identifiable malignant foci in the neck.

Suppressor therapy in the form of thyroid hormone has been found to be effective in papillary and functioning follicular lesions. It is administered in a dosage slightly below that which would give toxic symptoms or an increase in the pulse rate.

In summary, the pure papillary lesion is treated by total lobectomy on the involved side and by sub-total on the opposite side to catch the multicentric lesions. Thus, the parathyroid function can be preserved also. The slow-growing characteristics and metastasizing potentials of this lesion, plus

its suppression by thyroid hormone, make this type of treatment possible. Extensive cervical-node metastasis means that a radical neck dissection is the most expedient method of approach. If possible, this should be a modified neck dissection. Preservation of the above-mentioned anatomic features can be effected. If the glands are adherent to the stratified muscles in the neck, they can be sacrificed without any ill effects. The less extensive the nodal involvements, the less entensive need be the surgical attack on the lymph glands.

Dr. Smith's Clinical Diagnoses: 1. Sudden death due to asthma and adrenal insufficiency. 2. Carcinoma of the thyroid gland.

Dr. Coleman: Dr. Noble Irving, the radiologist, saw this patient, and I should like to ask him for his comments.

Dr. Noble W. Irving: This is a radiographic study of the chest of this patient dated December 22, 1960. You will note that the cardiac silhouette is markedly narrowed, that there are marked increases in the rib interspaces, that the diaphragms are flattened and that there is an increased anterior-posterior dimension of the chest. These are indicative of an emphysematous chest, which is consistent with the patient's history of repeated sinus infections throughout his life, with chronic pulmonary disease, and with his history of bronchial asthma.

The right lung field at that time was relatively clear. It is to be noted there were areas in the left lung field that showed broadening of the bronchial vascular markings, with an infiltration along the bronchioles that was thought indicative of a pulmonary infection—either an acute or a chronic bronchitis.

On December 6, 1960, an I^{131} study was done, and it was found that there was a 25 per cent uptake, which was considered to be in the normal range of metabolism of iodine by the thyroid. A scintiscanning was also done at that time. The radioactive iodine was unevenly distributed throughout the gland, and there were several so-called "cold spots." These were particularly notable on the right side, where the nodules were present. This was interpreted as a nodular goiter, with a number of nonfunctioning nodules present.

This patient presents several interesting radiologic features. First of all, since childhood he had had repeated episodes of sinusitis and upper respiratory infections for which he received steroids intermittently for approximately 10 years. In addition, between the ages of four and 12, he received irradiation therapy to the head and neck. We are not certain as to whether he received irradiation to the chest. It is stated that the amount of irradiation he received is unknown, but since it was over a period of eight years, we can assume that more than one course of therapy must have been given, and that probably not less than 75 to 100 roentgens was given with each course. Now at the age of 19 he appeared with a nodular thyroid, which has been biopsied and apparently found to be a carcinoma of the thyroid. This raises the question of the contribution of the irradiation as a causative factor in the thyroid carcinoma.

Until about 1955—that is, previous to the report of Clark,* in Chicago, pointing out the high incidence of carcinoma of the thyroid in children who had had irradiation about the head and neck—it was fairly common practice in this country to treat persistent bronchosinusitis with small increments of irradiation therapy. Just previous to that time, it was also the practice to treat an enlarged thymus with irradiation therapy. There still is some controversy among various clinics in regard to irradiation as a causative agent of thyroid carcinoma, and no definite conclusion has been reached. However, there is a preponderance of attitude among radiologists and other clinicians that there is a relationship between the incidence of carcinoma of the thyroid in children and previous irradiation. Most of you are familiar with Clark's report published in 1955 which shows this increased incidence.

A group at the University of Cincinnati, in approximately 1957, reviewed 2,230 patients who had received irradiation during infancy and 3,777 of their siblings who had not received irradiation. In the first group 11 cases of carcinoma were found, and in the second group none, but the control series has been questioned by some in that it was not necessarily a random population.

On the other side of the ledger, Carney, Patton and Hempleman, in Pittsburgh, reviewed a series of 1,564 children who had received treatment to the thymus between 1938 and 1946. These patients and their families and siblings were also reviewed in 1956 and 1958. There were 2,923 untreated siblings in this group. Strangely enough, no malignancies were found in the treated group, but in the untreated group of siblings there were four cases of carcinoma of the thyroid and one case of leukemia. However, this is as might be expected in a random population series.

Then Dr. Erick Uhlman, at the Michael Reese Hospital, reviewed 480 children who had received therapy for hypertrophied lymphoid tissue. At the end of seven years, none had developed carcinoma of the thyroid. On the other hand, of 25 patients under 21 years of age who had had carcinoma of the thyroid, only four had had previous irradiation.

A group at the University of Rochester, N. Y., reviewed 1,722 patients who had received x-rays to the thymus, 1,502 of whom could be traced, and compared them with 1,903 of their siblings. They found 18 malignant tumors among the children who had been treated.

These studies do not give as clearly defined conclusions as we should like to draw, but they do point out that irradiation should be given with great caution and that there should be excellent indication for treatment.

I should like to take a few minutes to discuss

* Clark, D. E.: Association of irradiation with cancer of thyroid in children and adolescents. J.A.M.A., **159**:1007-1009, (Nov. 5) 1955.

with you the role played by radioactive iodine in the treatment of carcinoma of the thyroid. It is difficult to correlate the histologic character of the carcinoma and the predictability of the uptake of iodine by the tumor. However, these may be grouped into three classifications according to their uptake of iodine. First, are those which do not concentrate the iodine initially. These are the anaplastic carcinomas, the follicular cell carcinomas and the solid malignant adenomas. Then there is a second group—lesions in which uptake is invariably good. This consists of follicular variants of the papillary adenocarcinoma. There is a third group of lesions in which there is no correlation between the cell type and the uptake, namely, the mixed papillary and the mixed follicular carcinomas.

The most reliable way of demonstrating uptake of radioactive iodine by the tumor is by giving the patient a dose of radioactive iodine previous to surgery and running auto-radiographs on the resected tissue, for then it may be demonstrated that the radioactive iodine is taken up within the cells of the tumor. However, is this is not possible, it may also be demonstrated by scanning studies, and if the uptake is found to be negligible or poor, it can be enhanced by giving the patient thyroid-stimulating hormone previous to the administration of the radioactive iodine. The primary tumor is better treated by surgical extirpation, if possible. If there are remnants of carcinoma, or if there are metastases, then the use of radioactive iodine may be feasible. In the case of metastases, it is necessary that all the normal thyroid tissue be abated by means of either surgery or radioactive iodine before the metastases can be expected to have an appreciable uptake of the radioactive iodine. The dosage range of radioactive iodine varies considerably throughout the country. Some clinics will give a dose of 25 millicuries per month up to a dose of about 200 millicuries or until definite response has been shown. Other clinics give one massive dose of approximately 200 millicuries. Once the patient has been made hypothyroid, by either surgery of radioactive iodine, it is necessary to give adjunctive therapy of thyroid extract.

There are some interesting articles now beginning to appear in the literature on the relationship between thyroid hormone and irradiation. Wilson and his group, in about 1958, published an article in which they demonstrated reversal of progressive irradiation reaction of skin and tissue through the administration of up to 200 micrograms of 3, 5, 3-L-triodothyronine. Some speculation is now going on as to whether administration of thyroid extract or other thyroid analogues might be beneficial in modifying the course of malignancy.

Dr. Coleman: We come now to autopsy findings. Autopsy was performed three hours after death. The body measured 5 ft. 8 in., and weighed approximately 140 lbs. The surgical scar present on the anterior surface of the neck was noted. The tissue over the left side of the neck was indurated, and firmly adherent to the skin. The anteroposterior diameter of the chest was increased. The chest was congenitally deformed, with a "pigeon-breast" malformation. Beneath the left nipple was an unsutured incision, 3 cm. in length, which had been made during efforts to reinstitute cardiac action. No significant abnormalities of the abdomen, external genitalia or extremities were observed.

The heart weighed 250 Gm. No significant valvular lesions were present. However, the myocardium of the left ventricle measured 1.8 cm. in thickness, which represented an increase of approximately 30 per cent, the normal thickness of the left ventricular wall being approximately 1.3 cm.

The lungs, combined, weighed 830 Gm., which was within normal limits. Multiple emphysematous blebs were noted beneath the pleura. Some of these measured up to 4 cm. in diameter. Scarring of both apices was present, and both lungs were of decreased crepitance throughout the lower lobes. The tracheobronchial tree was filled with tenacious mucopurulent exudate. Thickening of the bronchial walls was present.

Microscopically, chronic bronchitis was noted,

Figure 1. Gross photograph of larynx and the soft tissues about it, showing scarring and residual papillary carcinoma.

and many of the inflammatory cells were eosinophils. There was hyperplasia of the mucous glands of the tracheobronchial tree (Figures 1, 2 and 3).

Marked pulmonary fibrosis was present, and emphysema was noted throughout both lungs. Some of the emphysematous blebs had coalesced to form cystic structures as large as 4 cm. in diameter. As a result of the pulmonary fibrosis and the emphysema, there was marked reduction in the functioning pulmonary tissue.

No significant lesions of the liver were observed, other than chronic passive congestion. The spleen weighed 170 Gm., as compared to a normal weight of 150 Gm. No significant lesions were noted.

The adrenal glands together weighed 7.5 Gm. The normal weight of a single adrenal gland is approximately 6 Gm., so hypoplasia of the adrenal glands was present. The hypoplasia was especially noticeable in the cortex.

No significant lesions of the kidneys, urinary bladder or testes were observed.

The pancreas and the gastrointestinal tract likewise revealed no significant abnormalities.

Moderate cerebral edema was present, the brain weighing 1,690 Gm. The expected weight of the brain was approximately 1,400 Gm. No other lesions of the brain were observed.

Examination of the neck revealed wound-healing from the previous thyroidectomy. Several small focal abscesses were present. There was also residual carcinoma which was papillary in type. The carcinoma was growing by expansion and very low-grade infiltration into the surrounding thyroid tissue. Several pretracheal lymph nodes contained metastatic papillary adenocarcinoma.

A comparison of the residual carcinoma with that observed in the surgical specimen removed on December 19 revealed the same histopathology. The lesion was a papillary adenocarcinoma (Figures 3 and 4). No other metastatic lesions were present.

Death is attributed to an acute attack of bronchial asthma, with pulmonary insufficiency and cardiac failure. A precipitating factor here was the emotional stress incident to the surgical procedure which had been planned for the following day. A contributing factor was a relative adrenal insufficiency due to prolonged steroid therapy.

Discussion: Carcinoma of the thyroid gland is an unusual lesion in adolescence and childhood. In a series reported by Warren,* there were 23

* Warren, S., Alvizouri, M., and Colcock, B. P.: Carcinoma of thyroid in childhood and adolescence. CANCER, 6:1139-1146, (Nov.) 1953.

Figure 2. Photomicrograph. Papillary adenocarcinoma of the thyroid gland (surgical specimen). The carcinoma is below and the thyroid tissue is above.

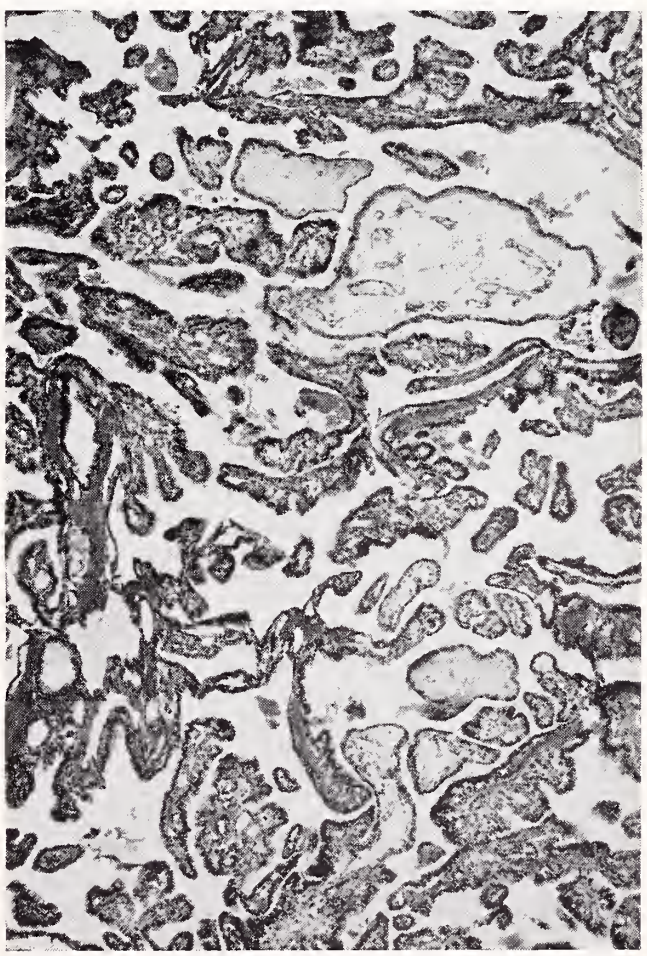

Figure 3. Photomicrograph. Papillary adenocarcinoma of the thyroid gland. Residual carcinoma at autopsy. The histopathology is similar to that of the surgically-removed tissue.

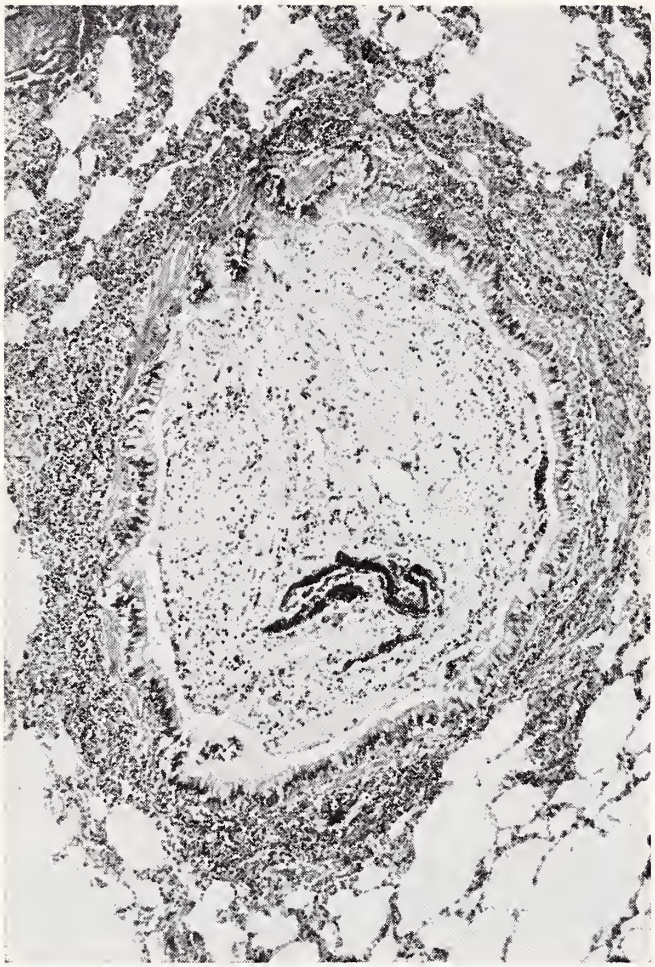

Figure 4. Photomicrograph. Lung, showing bronchus filled with mucopurulent exudate. There is peribronchial infiltration including many eosinophils.

cases of carcinoma of the thyroid in children and young adults out of a total of 612 cases of thyroid carcinoma. This is an incidence of 3.7 per cent.

Papillary adenocarcinoma is more common in childhood and adolescence than it is in adulthood. In Warren's series, 47.7 per cent of the lesions in youngsters were papillary carcinomas, but in adults, 35 per cent were of that type.

The relationship between irradiation in infancy and childhood and subsequent thyroid carcinoma is a very controversial one. Winship and Rosvoll** state that 38 per cent of all children with thyroid carcinoma are known to have received therapeutic amounts of irradiation in infancy or early childhood. Some investigators have stated that as many as 80 per cent of these patients have had irradiation. The time interval between irradiation and the development of carcinoma is stated by Winship to be approximately 8.7 years.

Indications for irradiation in childhood are flexible. Many of the patients, however, are stated to have irradiation for an enlarged thymus gland, chronic bronchitis, sinusitus or pulmonary infection.

The amount of irradiation received by the patient under discussion today is unknown. It is likely, however, that he received a significant amount of it.

This patient's bronchial asthma illustrates the problem facing the patient and the attending physician when they consider the use of steroid therapy. Steriod therapy is very helpful in many cases of bronchial asthma, but once treatment has been instituted, it is almost impossible to withdraw it, since the effectiveness of the therapy is due in a certain degree to the suppression of adrenocortical function. Susceptibility to infection is a hazard in patients who are susceptible to respiratory infection because of their underlying disease. Interference with growth is likewise an undesirable complication. The inability of the patient to withstand stress because of adrenocortical insufficiency is likewise a hazard.

Sudden death may occur in asthmatics. Robertson and Sinclair† reported on 18 fatal cases of bronchial asthma—11 in females and 7 in males. The majority of the patients were between the ages of 40 and 50 years. A psychological background was either a primary or a secondary factor in 12 of those cases.

In discussing the mechanism of sudden death in an asthmatic patient who had been relatively well until a few minutes prior to death, they state that in a very severe acute attack there is a progressive rise in the intra-alveolar pressure which must quickly overcome the pulmonary capillary blood pressure of 10 mm. Hg. They believe that this leads to occlusion, as when the pressure in the top of a sphygmomanometer approximates that of the pressure in the brachial artery. The much increased resistance of the pulmonary vascular bed thus cannot be overcome by the right ventricle, and it fails, with subsequent cyanosis, collapse and death. Mucus plugging was invariably present in their patients.

It has been suggested by other investigators that simple mechanical asphyxiation is the cause of death in patients dying suddenly of bronchial asthma. Such deaths, they think, are on the basis of the bronchospasm, pulmonary edema and tenacity of the mucus. Certainly in the patient under discussion today the pulmonary changes secondary to bronchial asthma were of sufficient magnitude to be associated with sudden death. When adrenal insufficiency due to prolonged steroid therapy was added to the psychologic factor of apprehension about the surgical procedure to occur on the next day, it is understandable that sudden death occurred.

ANATOMIC DIAGNOSES

1. Chronic mucopurulent bronchitis.
2. Pulmonary emphysema.
3. Pulmonary fibrosis.
4. Papillary adenocarcinoma of the thyroid gland.

Cause of death: Bronchial asthma.

** Winship, T., and Rosvoll, R. V.: Childhood thyroid carcinoma. CANCER, 14:734-743, (Jul.-Aug.) 1961.

† Robertson, C. K., and Sinclair, K.: Fatal bronchial asthma; review of 18 cases. BRIT. M. J., 1:187-190, (Jan. 23) 1954.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 19-YEAR-OLD WOMAN was admitted to the University Hospitals in March, 1942, for the delivery of her first child. She had 2+ ankle edema, a blood pressure of 160/110 mm. Hg, and 3+ albuminuria. Her labor and delivery were uncomplicated, and a normal child was born. Following delivery, the patient did well. Her blood pressure fell to 130/85 mm. Hg, and her urine became negative for albumin. A chest x-ray two days before delivery of the child had shown definite cardiac enlargement and evidence of left ventricular hypertrophy. The Danzer ratio was 0.53.

She had pregnancies in 1945, 1947 and 1949, complicated by swollen ankles, albuminuria and hypertension. After the fourth pregnancy, a tubal ligation was performed. In 1956, she was hospitalized for six days because of a kidney infection, characterized by pyuria, fever, chills and generalized malaise. She was treated with sulfa and penicillin, and made an uneventful recovery. In the spring of 1960, during a physical examination for insurance, high blood pressure was detected, and some medication was prescribed. In July, 1961, the patient became dyspneic and noticed swollen ankles. During eight days of hospitalization at that time, she was told that she was anemic and had an enlarged heart. Treatment consisted of blood transfusions, digitalis and antihypertensive drugs. She was hospitalized again on September 15, 1961. She was treated with bed rest, chloramphenicol and one blood transfusion.

She was transferred to this hospital on September 21. Her family doctor stated that she had been taking hydrochlorothiazide, 50 mg. b.i.d.; hydralazine hydrochloride, 25 mg. t.i.d.; and Digoxin, 0.25 mg. daily. At the time of admission, the patient's complaints were periodic ankle edema, generalized weakness and some weight loss. During the preceding year, she had purposely lost weight from 180 to 165 pounds. However, her weight loss had continued, so that by the time of admission she weighed 145 pounds. She attributed part of that weight loss to illness and poor appetite.

Physical examination showed an alert, cooperative, pleasant 38-year-old woman. Her pulse rate was 100/min., her blood pressure was 220/110 mm. Hg, her skin was dry, and her lymph nodes were not enlarged. The optic fundi showed narrowing and spasm of the arterioles, small hard exudates, A-V nicking, and a single flame-shaped hemorrhage in the right fundus. The lungs were normal to examination. The apex impulse of the heart was at the anterior axillary line in the sixth intercostal space. The left ventricle was overaccessible. The sounds were loud, the rhythm was regular, and there was a soft, grade I murmur over the entire precordium. The liver and spleen were not enlarged. Pelvic examination was normal. There was minimal pre-tibial pitting edema.

The specific gravity of the urine was 1.015, the pH was 5.5, and there was 3+ albumin, but no blood or sugar. Microscopic examination showed 5-10 white blood cells and 2-3 granular casts per high-power field. The hemoglobin was 8.5 Gm./cu. mm., and the white blood cell count was 10,150/cu. mm. The red blood cell count was 2,390,000/cu. mm.; the platelets were 410,000/cu. mm.; and the sedimentation rate was 118 mm./hr. The BUN was 115 mg./100 ml.; the creatinine 11.8 mg./100 ml.; the CO_2 14.7 mEq./L.; the sodium 134 mEq./L.; the potassium 6.0 mEq./L.; and the chlorides 102 mEq./L. A chest x-ray showed mild left ventricular enlargement, but otherwise the chest x-ray was normal. An electrocardiogram showed T-wave changes which might have been on the basis of digitalis effect.

Shortly after admission, the patient developed vaginal bleeding. A repeat pelvic examination showed no evidence of physical abnormality. A cytology smear of the cervix was taken, but it showed no abnormal cells. The patient was treated with Enovid, 10 mg. twice daily, and the vaginal bleeding diminished. Her course was characterized by an increase in the BUN from 115 mg./100 ml. on September 22, to 190 mg./100 ml. on September 30, 1961. This occurred in spite of the fact that her oral intake of fluids averaged 2-2½ L. per day, and her urinary output averaged about 1 L. per day. Her blood pressure was maintained at about 190/100 mm. Hg by means of reserpine and hydralazine.

Six days after admission, she began to have mental changes, and complained of blurring of

vision. She became lethargic, and muscle twitching was noted. On the ninth hospital day, she became hypotensive. She was treated with Aramine and Levophed. As a result, there was a transient increase in her blood pressure from 130/80 to 200/90 mm. Hg. She continued to do poorly. It was noted that the pulse and respiratory rates increased during her last day of hospitalization. She died at 11:45 p.m. on September 30, 1961.

SUMMARY OF CLINICAL DISCUSSION

Mr. Dwight Rost, junior ward clerk: Somewhat contrary to custom, I should like to begin at the end and discuss the terminal problems in this case in the light of their possible etiologies.

Three months prior to admission, this 38-year-old woman had developed signs and symptoms of congestive heart failure, and she entered the University Hospitals in September, 1961, having taken (1) a diuretic, (2) an antihypertensive drug, and (3) digitalis for three months.

On admission, she complained of periodic ankle edema, weakness and weight loss, and was found to have a blood pressure of 220/100 mm. Hg, a pulse rate of 100, grade 4 arteriosclerotic vascular changes in her fundus, cardiac enlargement and minimal pretibial pitting edema. Laboratory values included a blood urea nitrogen of 115 mg. per cent, a creatinine of 11.8 mg. per cent, and evidence of metabolic acidosis. In the succeeding nine days, her BUN rose from 115 to 190 mg. per cent, and as noted in the protocol, she developed signs and symptoms that are characteristic of uremia. Her blood pressure remained at approximately 190/100 mm. Hg until the ninth day, at which time she became hypotensive and was treated with vasopressors. Then the pulse rate and the respiratory rate rose, and she died on the ninth day following her admission.

The problem now becomes one of explaining the etiology of these terminal events. Review of the patient's history reveals two prior indications of difficulty: (1) toxemia during four successive pregnancies from 1942 to 1949, and (2) a "kidney infection" in 1956. My fellow students and I feel that both of these are significant in explaining her terminal uremia and cardiac failure.

This woman was first seen at the University Hospitals in 1942, at age 19, with signs and symptoms which strongly suggested toxemia of pregnancy. It would be difficult to implicate one episode of toxemia, but it is to be noted that during three subsequent pregnancies, in 1945, 1947 and 1949, she presented similar pictures which we feel represented recurrent toxemia of pregnancy. She was not treated here, and we are not told the extent of the hypertension, nor do we have any indication as to the level of her blood pressure between the various pregnancies. This information would be very helpful.

At first glance, one might postulate that the uremia seen in the patient's terminal episode was due to renal damage secondary to the toxemias *per se*. This possibility has been the subject of warm controversy. Dieckmann,[1] who has studied toxemia extensively and is widely quoted, states: "I believe true eclampsia or preeclampsia rarely results in permanent disease of the vascular or renal systems." Thus, if we accept Dieckmann's findings, we cannot postulate that the uremia seen terminally in today's case was due directly to the toxemias of pregnancy. However, Dieckmann further states that ". . . if a patient has true preeclampsia or eclampsia, there will be no recurrence of the disease in subsequent pregnancies. . . ."

I should like, now, to call your attention to the fact that in today's case it appears that we *did* in fact have recurrent toxemia of pregnancy. Therefore, according to Dieckmann, we did not have true eclampsia or preeclampsia, but instead had a problem of essential hypertension with superimposed toxemia.

Browne and Dodds[2] suggest that the patient in most cases of recurrent toxemia has hypertension during the interval between pregnancies. The remainder are "potential hypertensives," and it is suggested that in all these patients there is a familial hypertensive tendency.

Disregarding the etiology, most investigators agree that the mean blood pressure of women who are 10-15 years post-toxemia is significantly higher than that of non-toxemia controls.

Again I suggest that if we knew the various blood pressures found in the patient during the subsequent pregnancies, we could be more accurate in our suppositions.

Having considered the above points, we feel that the uremia and cardiac failure seen in this case cannot be explained as the end results of renal vascular damage arising from toxemia of pregnancy. On the contrary, we feel that the recurrent toxemia seen in this patient was a complication to which she had been predisposed by a significant underlying essential hypertension or, possibly, by a "potential hypertension." The toxemia may have aggravated the condition, and hypertension was indeed diagnosed in 1960—11 years after her last pregnancy.

If she did, in fact, have hypertension with her pregnancies and throughout the intervening years, it would have been of the benign type characterized by benign arteriosclerosis. However, in July, 1961, she developed signs and symptoms of cardiac failure which probably was of hypertensive etiology, and three months later was admitted to the University Hospitals with marked hypertension (a blood pressure of 220/110 mm. Hg), grade 4 hypertensive retinopathy, and signs and symptoms of cardiac failure and uremia.

This clinical picture is characteristic of malignant hypertension, an entity which has been defined as follows by the Medical Advisory Board of

the Council for High Blood Pressure of the American Heart Association:[3]

"A clinical phase, rarely occurring *de novo*, more often appearing after a primary or secondary hypertension, characterized by diastolic hypertension and by accelerated and progressive renal damage, usually (but not necessarily) accompanied by papilledema, often by retinal hemorrhages and 'exudate,' and giving rise to early death from uremia unless the course is terminated along the way by complicating brain or heart disease."

Earlier, I mentioned that this woman's history indicated two significant difficulties—the toxemia which has been discussed, and a "kidney infection" in 1956, which was characterized by pyuria, fever, chills and generalized malaise. This is thought to have been pyelonephritis. Then in September, 1961, six days prior to admission at the University Hospitals, she was treated with chloramphenicol for reasons unknown. We assume that her family doctor was probably treating pyelonephritis again. Thus, we have evidence of pyelonephritis on two occasions separated by five years. These quite probably were due to exacerbations of a chronic low-grade pyelonephritis. Cecil[4] states: "The clinical picture is variable, and frequently the symptoms are so mild that the disease escapes recognition until the terminal stage. Indeed it seems probable that about 75 per cent of patients with low grade chronic pyelonephritis are asymptomatic." He further states: "Chronic pyelonephritis may be asymptomatic for many years. Such cases not infrequently present as severe intractable anemia, often out of proportion to the degree of azotemia." Today's case demonstrated a hemoglobin of 8.5 Gm. on admission.

In keeping with my announced intention of proceeding from the end to the beginning, I shall now consider the etiology of chronic pyelonephritis. Dr. R. H. Flocks has recently stressed to the Junior Class the importance of predisposing urinary-tract obstruction or stasis in urinary-tract infection. This case presents no obvious evidence of such. It is therefore postulated that during one of the patient's pregnancies she developed a low-grade chronic pyelonephritis which did not become symptomatic until 1956. Other possible explanations, including glomerulonephritis, polycystic kidney disease, pheochromocytomas, various renal lesions, and the collagen diseases, were considered, but were not thought applicable for various reasons.

I began this discussion by noting the presence of hypertension, uremia and cardiac failure. Two possible explanations have been developed to explain these—malignant hypertension and chronic pyelonephritis. The junior students feel that both of these were present and were necessary to explain the findings in this case.

The chronic pyelonephritis and hypertension may have existed separately over the years, but in all probability one influenced the other, and the combined effects produced severe renal damage, renal insufficiency and cardiac failure.

Messrs. Ringer, Rosenberg, Rohwedder and I therefore believe that the immediate cause of death was heart failure, and would expect the autopsy to have revealed (1) pyelonephritis, (2) benign arteriolosclerosis, and (3) malignant arteriolosclerosis with possible (a) necrotizing arteriolitis and (b) glomerulonecrosis.

Dr. Joseph Buckwalter, Surgery: Thank you for your thoughtful, well organized and well documented discussion. I am pleased I am the moderator, rather than the next discussant. Dr. Kirkendall will now discuss the case.

Dr. Walter M. Kirkendall, Internal Medicine: The case we are discussing today is a modern tragedy, for the patient was a relatively young mother who died at a time when she should have been of most value to her family. It is a problem which should command a great deal of attention from medicine in general. Dr. Buckwalter indicated that this was not primarily a surgical problem, but I think that there are important surgical implications to be drawn from it, particularly as far as urology is concerned. It is possible that this woman had a lesion in her lower urinary tract which caused infection and renal failure, and which might have been amenable to surgery.

I should like to organize my discussion around that of the juniors. In a careful perusal of the protocol, one would have to say that urinary-tract difficulty and perhaps urinary-tract infection were important parts of this woman's illness. Having decided that renal failure was present, one should first consider the matter of infection and ask the question, "Was the evidence for infection a red herring in this case, and did the patient have underlying renal difficulty that was obscured by the infection, or did the woman have a urinary-tract infection and later a kidney infection, either secondary to an obstructive lesion or primary in the kidney, which was responsible for the subsequent sequence of events?"

Of the primary kidney disorders, I see no reason to believe that the patient had any of the unusual diseases such as a tubular dysfunction, the de Toni-Fanconi syndrome, diffuse angiitis or any of the so-called collagen diseases. Likewise, I do not believe that she had sarcoidosis, diabetic renal vascular disease, renal failure from subacute bacterial endocarditis, or polycystic disease of the kidney. There is no evidence to support the belief that she had a metabolic disturbance such as chronic potassium depletion or hypercalcemia which might have resulted in kidney failure.

Of the primary renal diseases, I think the two that we must think of most seriously are chronic glomerulonephritis and nephrosclerosis resulting from vascular damage which she may have sustained from a bout of toxemia of pregnancy. We

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References: 1. Fries, E. D.: In Hypertension, ed. by J. H. Moyer, Saunders, Phila., 1959 p. 123. 2. Fries, E. D.: South M. J. **51**:1281 (Oct.) 1958. 3. Finnerty, F. A. and Buchholz, J. H.: GP **17**:95 (Feb.) 1958. 4. Gill, R. J., et al.: Am. Pract. & Digest Treat. **11**:1007 (Dec.) 1960. 5. Brest, A. N. and Moyer, J. H.: J. South Carolina M. A. **56**:171 (May) 1960. 6. Wilkins R. W.: Postgrad. Med. **26**:59 (July) 1959. 7. Gifford, R. W., Jr.: Read at the Hahnemann Symp. on Hypertension, Phila. Dec. 8 to 13, 1958. 8. Fries, E. D., et al.: J. A. M. A. **166**:137 (Jan. 11) 1958. 9. Ford, R. V. and Nickell, J.: Ant. Med. & Clin. Ther. **6**:461, 1959.

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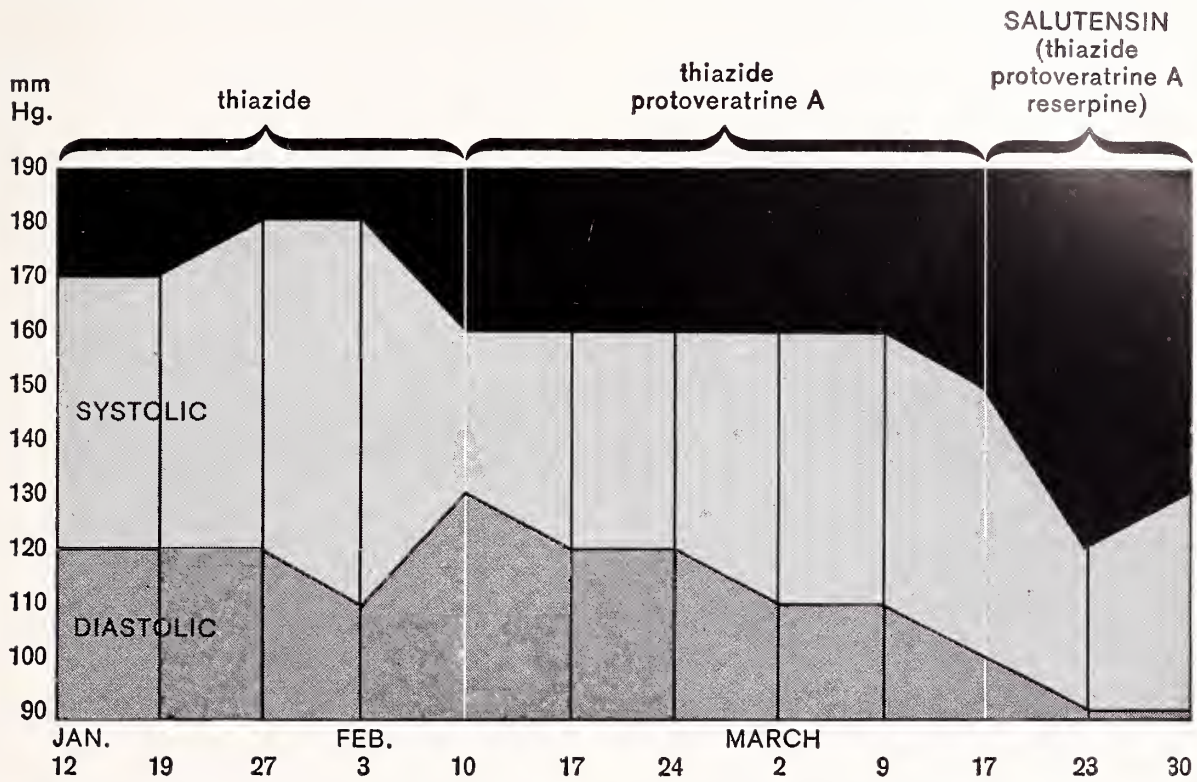
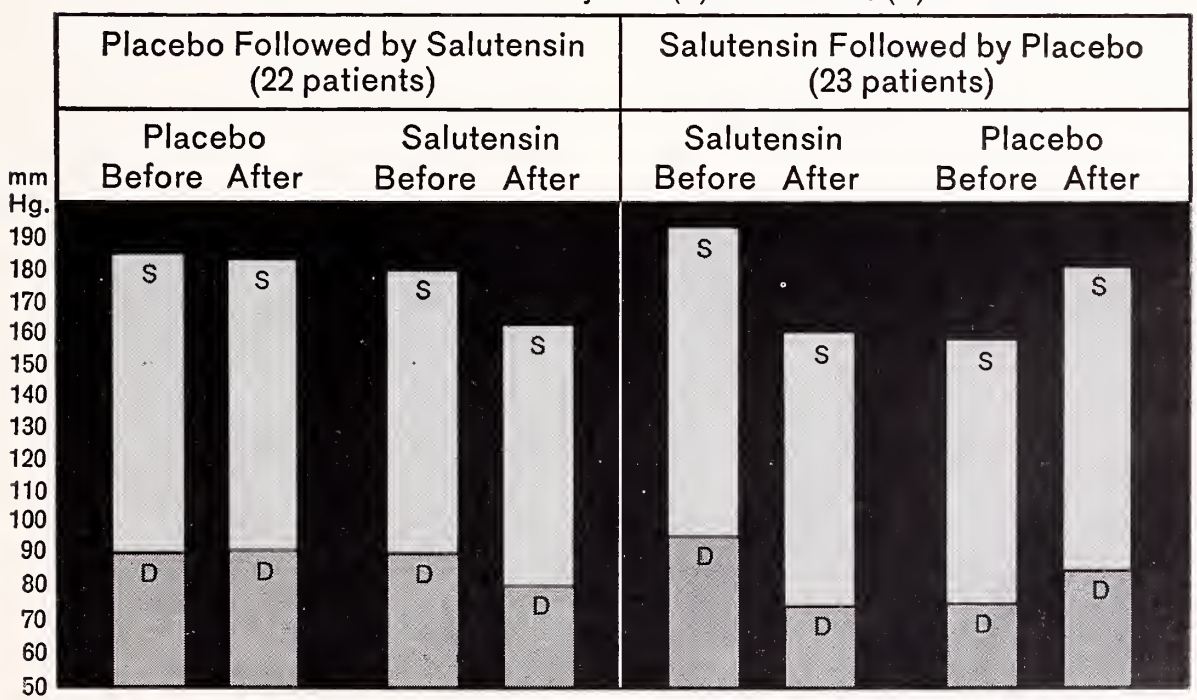
11 WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS BY SERIAL ADDITION OF THE INGREDIENTS IN SALUTENSIN IN A TEST CASE

(Adapted from Spiotta, E. J.: Report to Department of Clinical Investigation, Bristol Laboratories)



3½ WEEKS TO LOWER BLOOD PRESSURE TO DESIRED LEVELS USING SALUTENSIN FROM THE START OF THERAPY IN A "DOUBLE BLIND" CROSSOVER STUDY

Mean Blood Pressures–Systolic (S) and Diastolic (D)



In this "double blind" crossover study of 45 patients, the mean systolic and diastolic blood pressures were essentially unchanged or rose during placebo administration, and decreased markedly during the 25 days of Salutensin therapy. (Smith, C. W.: Report to Department of Clinical Investigation, Bristol Laboratories.)

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must also consider the possibility that she had essential hypertension with progressive vascular disease over the many years that she was followed. I shall return to the primary kidney disorders and consider them in more detail later.

I think it very important for us to consider the possibility that she had an obstruction in her urinary tract, and that much of her trouble came from an infection in this area, secondary to the obstructed flow. Since approximately 80 per cent of the patients with urinary-tract infection have either ectasia or obstruction to account for the infection, we must give this possibility serious consideration in our patient, since she had a relatively good history of chills, fever and pyuria in 1956. I do not believe that it is possible, from the material presented, to suggest a site for such a potential obstruction, and I shall not attempt to do so. It should be pointed out, however, that the obstruction may have been from the orifice of the urethra to any one of the nephrons of the kidney.

To return to the primary disorders of the kidney, I do not believe we have very much evidence to support the view that this woman had a chronic glomerulonephritis when she was first seen here. Although it is true that she had signs of renal damage and urinary findings which were compatible with chronic nephritis, these were cleared up very quickly following the delivery of her infant. It is also noted in the protocol that her blood pressure promptly returned to a level that one might expect to see in a 19-year-old woman just recovering from toxemia. The one fly in the ointment is that, according to the protocol, there was evidence of left ventricular hypertrophy on a chest x-ray. I would not ordinarily expect this degree of cardiac enlargement to occur with a single short bout of toxemia, and it makes one consider the possibility that the patient may have had preexisting hypertensive disease. However, my total assessment of the problem would lead me to believe it not very likely that she had chronic glomerulonephritis at that time.

I should like to take issue with one thing that has been said today, namely that there is probably no long-term vascular damage from preeclampsia or toxemia of pregnancy. I think, despite the work of Dieckmann which has been cited, that even some of his colleagues have now taken the position that there may be, and probably is, long-term vascular disease following such complications of pregnancy. I shall mention two bits of evidence to support this viewpoint. Finnerty[4] has presented data that the vessels of the optic fundi show sclerosis in a large number of patients with toxemia well after the pregnancy has been completed. He correlated damage in this system with the severity and duration—particularly the latter—of the toxemia. The group working at Illinois Research Hospital[2] have used renal biopsy in following patients recovering from toxemia of pregnancy and have demonstrated that many of them had nephrosclerosis following what appeared to be classic varieties of this disease. They have evidence which supports the view that there is progression of this lesion as time goes on, and that it is accelerated by subsequent pregnancies. These observations are in accord with my clinical observations, namely that multipara—particularly those who have had histories of toxemia—have a considerable increase in incidence of hypertension. Therefore, although I realize that this is a controversial matter, I am inclined to believe that even the short period of stress that toxemia exerts on the circulation may cause long-lasting or even permanent vascular defects. In this woman's case, I suspect that the bouts of toxemia of pregnancy were partially responsible for her subsequent hypertension and renal failure.

This woman may initially have had "essential" hypertension, but it should be noted that we have no history of such a disorder in her parents (nor do we have a negative history), and she was known to be hypertensive at a very early age, long before the classic primary-hypertension patient's abnormality is recognized. I cannot rule out the possibility of essential hypertension, but I think it unlikely.

I should take the view, as have the juniors, that pyelonephritis was a relatively late arrival on the scene. Since I believe that the patient had recurrent toxemias of pregnancy with progressive nephrosclerosis, the renal damage so important to the genesis of pyelonephritis was apparently present. I think that it is difficult to be sure when the bacteria did arrive. It is possible that they were there quite early in the patient's illness. In this regard, I think it pertinent to point out that patients may be completely asymptomatic, as far as urinary-tract infections are concerned, before a complication of uremia calls attention to the troubled area. We have seen patients who apparently have had uremia from chronic pyelonephritis without ever having classic symptoms of urinary-tract infection. In this group, symptoms develop primarily from the loss of concentrating power of the kidneys, and the polyuria which so often is seen in the later stages of pyelonephritis —and, I think, this patient's subsequent difficulties as well—were from the insidious destruction of renal tissue which resulted.

As far as the matter of malignant hypertension is concerned, I think perhaps we may be led astray by the definition of the term. I would accept the fact that this woman had vasculitis, as demonstrated by her eyegrounds at the time she came to the hospital. It was not a very florid variety, and papilledema was not present. In terms of what we usually see when we diagnose the syndrome "malignant hypertension," this patient did not have the severe involvement of arterioles which we would expect to see in structures dis-

tant from the kidney. In general, whereas hypertensive exudates and hemorrhages may occur in the presence of renal disease, I don't call such a syndrome malignant hypertension. Rather, malignant hypertension means to me necrotizing arteriolitis and papilledema, which usually are seen before far-advanced renal failure. In other words, if the degree of renal failure is very great, and if other vascular defects are less prominent, I don't think the patient should be said to have malignant hypertension, even though the blood pressure is quite high. If the converse is true, and the general arteriolar bed is affected to a greater degree than the kidney early in the course of a bout of accelerated hypertension, I term the process malignant hypertension. I believe that this woman had primary loss of renal mass, azotemia, then hypertension, and then finally moderate numbers of exudates and hemorrhages secondary to that disorder.

In regard to her terminal event, one should recognize the fact that patients with uremia are extremely vulnerable to water and electrolyte imbalance, to bouts of congestive heart failure, and to malnutrition. In addition, they usually have anemia, and often suffer from severe infections. In this instance, the patient appeared to be in relatively good condition until her sudden worsening. Perhaps the only clue we have is that she was getting 2½ L. of fluid per day, and was excreting only 1 L. per day. Although this does not seem to be an alarming excess, one should consider the possibility that with it she may have developed a circulatory overload.

Another matter of potential significance may have been the administration of Enovid. This substance produces what is essentially a physiologic pregnancy without the placenta or fetus. It is possible that in so doing it occasioned some additional salt retention with which the patient's diseased heart was unable to cope.

My tendency, therefore, is to suspect that the patient had an excess of water and electrolyte which precipitated the heart failure and her subsequent fall in blood pressure, cardiovascular collapse, and death.

In summary, I think this woman had nephrosclerosis from repeated bouts of toxemia. I also believe that she had chronic pyelonephritis grafted on the nephrosclerotic kidney, and that she eventually died of renal insufficiency. The terminal event was probably fluid and electrolyte excess, with heart failure.

Dr. Buckwalter: Thank you, Dr. Kirkendall. Are there any comments or additional diagnoses?

Dr. Streeter Shining, resident, Internal Medicine: I'd like to ask Dr. Kirkendall why he thinks the patient developed shock rather than ordinary congestive failure. It seems she developed shock and had to be treated with Aramine and Levophed.

Dr. Kirkendall: Patients who develop sudden congestive heart failure due to circulatory overload can develop shock, and quite frequently do.

Dr. Henry E. Hamilton, Internal Medicine: What evidence is there to support a diagnosis of heart failure in the last part of the patient's story? The spleen and liver were not enlarged. The lungs were normal. The heart tones were loud, and we have no substantial indications of cardiac dilatation.

Dr. Kirkendall: Persons with severe uremia and anemia may die of sudden left-sided heart failure with pulmonary edema, without prominent antecedent signs of heart failure. These patients have extremely vulnerable circulatory systems. They have great trouble in compensating for relatively small increases in vascular volume, as can be noted by the frequent precipitation of respiratory distress by the administration of very small amounts of blood intravenously. I believe that this patient's course, terminally, was consistent with her not having been in heart failure when she came into the hospital, but with the development of acute pulmonary edema under the circumstances described.

Dr. Fred Abbo, resident, Internal Medicine: Have we excluded the possibility of septicemia?

Dr. Kirkendall: No, I don't think we have. It is certainly possible.

Dr. Shining: I wonder whether we have any x-rays showing the exact size of the patient's heart.

Dr. Carl L. Gillies, Radiology: According to the report, we have a film taken on her first admission, when she was 19 years of age. At that time her Danzer ratio was .50, and the report states that the contour of her heart was that of left ventricular hypertrophy.

The film that I am now showing you was taken at her last admission, when she was 38 years of age. At that time, her Danzer ratio was .50, which is considered at the upper limits of normal, and the contour was that of left ventricular hypertrophy. The aortic knob is quite prominent for a woman of 38, and this finding is consistent with the patient's history of hypertension. The flat film of the abdomen is negative.

Dr. Buckwalter: I wonder whether someone will comment on the anemia that this woman had at the time of her admission, and on the blood potassium of 6.0 mEq./L. seven days before her death. Dr. Kirkendall mentioned something about surgery in his introductory remarks. Where would surgery fit into this picture?

Dr. David Culp, Urology: I submit to you that as far as the condition of this patient's kidneys is concerned, any conclusion drawn from the information provided in the protocol would be pure speculation. I realize that protocols are designed to provide a minimum of information, in order to stimulate thinking, but if information concerning the morphologic and functional condition of the kidneys was purposely withheld, we were treated

unfairly. Therefore, I shall assume that this information was unavailable.

Actually, we do not know the condition of the kidneys, and that is why Dr. Kirkendall raised the possibility of surgical interest in this case. As far as I am concerned, the diagnostic studies performed in 1956, when the patient was alleged to have kidney infection, were inadequate. One cannot sit down at the mouth of the Iowa River, and by watching the particles float by, identify the areas at which these particles entered the stream, unless they have specific tags on them. Pyuria, fever, chills and general malaise do not mean kidney infection. Unless casts were found in the urine (and none were described in the protocol), we cannot conclude from the available information that the kidneys were infected. The pyuria could have originated almost anywhere along the urinary tract. Who is to say that the pyuria was not arising from an obstructed portion of the urinary tract? Antibiotic therapy alone, in urinary-tract infection, is justified only after obstructive lesions have been ruled out. Obviously, we do not know that this was done, and on this basis I contend that the diagnostic studies were inadequate. I don't wish to refute Dr. Kirkendall's diagnosis of a renal parenchymal infection (chronic pyelonephritis), for it is the most likely possibility, but I do wish to point out an area in which we have insufficient information.

Since I obviously do not feel that sufficient information was available, what other examinations would I consider necessary to establish a diagnosis of pyelonephritis, and to permit a more intelligent basis for therapy? In addition to a urinalysis, a urine culture should have been performed. The sensitivity of the organisms to chemotherapeutic and antibiotic agents should have been determined. An excretory urogram would have visualized the upper urinary tract and would have given some information as to its function and morphology. If renal function is sufficiently impaired to prohibit visualization by excretory methods, then retrograde studies are indicated.

For an ideal investigation of the urinary tract, I should consider these tests as the minimum. Additional information concerning the state of the kidneys may sometimes be necessary and helpful in the care of the patient. Differential renal-function tests utilizing the radioactive renogram or ureteral catheter technic are more reliable than excretory urograms in evaluating renal function. Arteriography will disclose pathologic lesions in the renal arteries that lead to the development of pyelonephritis through disturbed blood supply; and biopsy of the kidney is frequently helpful in establishing the diagnosis of the type of renal parenchymal disease that is present, since the clinical manifestations are often overlapping. Of course, one would not blindly order all of these tests as a battery of examinations, but would choose each examination on the basis of historical, clinical and previous laboratory information.

Dr. Kirkendall: I think the anemia that this patient had is compatible with the degree of uremia which she manifested, and in my evaluation of her problem I was not very much worried about it. There is, of course, the possibility that terminally she might have been bleeding into her gastrointestinal tract. I didn't see evidence in the protocol that this had occurred, and I haven't really considered the anemia as anything other than the depression of red cells and hemoglobin that is characteristic of uremia.

The serum potassium of 6.0 mEq./L. which was recorded when the patient entered the hospital, I think, is a reflection of the disordered acid-base metabolism as reflected by the CO_2 content of 14.7 mEq./L. It is known that as the CO_2 content in the serum decreases, serum binding sites for potassium become more numerous, and the serum value usually increases. Conversely, as the CO_2 content rises, binding sites apparently become less numerous, and the serum potassium goes down without very much change in total exchangeable potassium. It is rare for the patient with uremia who is excreting a liter of urine per day to develop potassium intoxication unless the ingested potassium is very great. Because potassium is both filtered in the kidney and also excreted by tubular mechanisms, the elimination of this cation usually goes on normally until oliguria develops. It is rare, under the circumstances described in the protocol, for patients to have major cardiovascular difficulties from serum potassium in this range. Therefore, I don't think (unless the patient was presented a large load of potassium or had oliguria with pronounced tissue destruction) that hyperkalemia was the cause of her death.

Dr. Edward E. Mason, Surgery: Are weights given on the chart?

Dr. Buckwalter: The weight recorded on September 30, the day she died, was 140½ lbs. She had been admitted to the hospital on September 21. On the day after her admission, her weight had been recorded as 151½ lbs., and on September 24 and 26, as 151 and 147 lbs., respectively.

There is a little more information that I should like to add. I'm sure Dr. Bedell did not hold this back. The urine was cultured and Staphylococcus epidermidis was found. The count was less than 1,000 per milliliter. The absences of intravenous pyelography and the other studies that Dr. Culp has mentioned were discussed at the CPC planning conference. We had no comment.

Now there was another finding. This woman had a lot of electrolyte studies. The ones in the protocol were done on the day that she was admitted. She had them daily until she died. Her potassium at the time of her admission was 6.0 mEq./L., and it was 6.2 mEq./L. when she died. Virtually no change in any electrolytes occurred during her seven days in the hospital.

Dr. A. R. Tammes, Pathology: The main findings at autopsy concerned the heart, the lungs and the kidneys. The heart was quite large (460 Gm.) and

the enlargement was generalized. The coronary arteries showed moderately severe atherosclerosis.

Both lungs were quite heavy. The right lung weighed 720 Gm., and the left lung weighed 1,090 Gm. There were numerous hemorrhagic areas and confluent whitish patches in both lungs, which grossly indicated a bronchopneumonic process.

Microscopically, there were large areas of lung in which the architecture was obliterated by acute inflammation. Groups of cocci were scattered throughout those areas. In some places there was some edema fluid. There was breakdown of some alveolar walls, and those areas would probably have resulted ultimately in an abscess. Hemolytic Staphylococcus aureus was cultured from the lungs.

The kidneys were small, the right one weighing 70 Gm., and the left one 65 Gm. The surfaces were very finely granular. The cortical width was severely diminished, measuring approximately 2 mm. in most areas.

Microscopically, the kidneys showed glomerulonephritis that was chronic and very severe. Essentially all the glomeruli were involved to some extent. Some glomeruli were completely replaced by hyalinized scar, and the other glomeruli—the ones that weren't involved to this degree—showed some scarring within their substance. Some of the glomeruli showed hyperplasia and thickening of the parietal layer of Bowman's capsule, with a crescent thus formed.

There was an apparent decrease in the number of tubules present, and an apparent increase in the interstitial substance. The interstitial substance also contained scattered leukocytes, most of which were lymphocytes. Many of the tubules were dilated. The small renal vessels showed marked intimal hyperplasia. In some areas, many of the small vessels were completely hyalinized.

The postmortem BUN was 200 mg. per cent, and the creatinine was 18.6 mg. per cent.

To summarize, the autopsy showed severe, chronic glomerulonephritis. An enlarged heart and the small-vessel intimal hyperplasia testify to the hypertension that was present. The immediate cause of death was bilateral hemorrhagic necrotizing bronchopneumonia.

Mr. John DeGroote, medical student: Was there any fluid in the pericardium?

Dr. Tammes: About 5 ml.—approximately the normal amount.

Student: What was the postmortem blood culture?

Dr. Tammes: There was Staphylococcus epidermidis, which we think probably was a contaminant. There were very few such organisms. Both the spleen and the blood cultures were considered to be sterile.

Dr. Buckwalter: What was the significance of the postmortem BUN?

Dr. Tammes: That mirrors quite accurately the immediate status at the time of death. Although we usually find BUN's and creatinines very slightly elevated over the last ones run before the patient's death, in general they are in good agreement with what was found just before death.

Dr. Buckwalter: What happens about six hours after death? Do the findings change?

Dr. Tammes: No, usually they stay quite stable.

Dr. Buckwalter: One question raised by this case is whether or not the patient should have had a hemodialysis. Would anyone like to discuss it?

Dr. Kirkendall: There is no question that patients with chronic renal disease to the point of having no excretory function can be maintained for long periods with intermittent dialysis. There are now about 10 patients in the United States who have been maintained for a year or longer by such artificial means. Repeated extracorporeal dialyses under such circumstances can be done only if one can produce an artificial circulation into which the dialyzing equipment can be tapped repeatedly. Most failures in this field have been attributable to an inability repeatedly to canalize the arterial circulation. At the present time a great deal of work is being done on this particular technical problem. At the moment there is no reasonable way to prepare these patients for repeated dialyses, and the time hasn't yet arrived when a large number of persons without functioning kidneys can be maintained for long periods.

In the long run, this would appear to be an impractical way to treat large numbers of patients with chronic renal disease. It seems to me that we should be better off—as would our patients—if we could transplant a new kidney so that the excretory function could be carried out more normally. At the moment, as you know, this too is impractical, but I think perhaps it deserves more research attention than does the method of intermittent dialysis.

In this hospital, because of our experience with long-term intermittent dialysis, we have developed the attitude that if a patient has a chronic renal disease that has been slowly progressive over a long period of time, we do not offer dialysis as a short-term solution for his problem. On the other hand, if the patient appears to have uremia that has recently been worsened by an exacerbation of a kidney disease, we usually offer dialysis in the hope that by tiding him over for a week or a month we can allow him to return to his previous state of well-being, where his kidney function will be compatible with long life. Extracorporeal dialysis is attended with some morbidity and considerable discomfort to the patient. Using such a tool and not being able to offer patients long-term benefit, we feel, is morally wrong, since by this means we can do no more than to prolong the completely unacceptable state of chronic uremia for a few days.

I should like to make one or two comments about the autopsy findings, for they have been a surprise to me. When this woman was first seen, she seemed to have fairly classic toxemia of pregnancy, and I believe that if the situation were to

confront me again, I should come to the same conclusion. It is important to remember that if one sees a hundred patients of this type, with histories similar to this woman's and with no more information than has been supplied us on today's protocol, pyelonephritis will be the major problem in 2½ to 3 times as many as will be found to have chronic glomerulonephritis or essential hypertension. It is wise for us strongly to suspect the diagnosis which theoretically is most likely to occur, and which probably is the easiest to treat.

I hope that this discussion today doesn't lead you to the impression that the vast majority of persons with problems similar to this have chronic glomerulonephritis.

Dr. Mason: Is the observed 3+ albumin enough to explain the specific gravity of 1.015?

Dr. Kirkendall: We do not know what the 3+ albuminuria mentioned in the protocol means. It could represent from one to seven grams of protein per liter. If we recall that protein raises the specific gravity of the urine about .001 units for each .4 Gm./100 ml., and if we assume that the patient had 6 Gm. of protein per liter of urine, this would make a difference of from .001 to .002 units to be subtracted from the recorded specific gravity of 1.015. Considering the inaccuracies of the method, I believe that the 1.015 reading could be explained on the basis of isosthenuria and proteinuria.

Dr. Mason: Were there other specific gravities mentioned?

Dr. Buckwalter: Yes, 1.015, 1.015 and 1.010.

Dr. Culp, do you think that if this woman had had proper evaluation from a urological point of view, we should have arrived at a more accurate diagnosis?

Dr. Culp: As I stated previously, I agreed with Dr. Kirkendall's diagnosis of a renal parenchymal disease (chronic pyelonephritis). I wish to point out only that there are a large number of patients with renal infection who have an underlying obstruction. Under these conditions, my answer to your question would be "Yes." We cannot effectively treat renal infection until the obstructing lesion has been relieved. With only the information contained in the protocol, we would be treating the patient blindly. Therefore, I think that the additional information is necessary.

Dr. Hamilton: In reference to an earlier remark of yours, Dr. Culp, it seems to me that we know a lot about the patient's kidney function. We know the specific gravity is fixed, taking into account the contribution of the 3+ albuminuria to the observed value. The precious few white blood cells don't account for the albuminuria. We also have uremia reflecting kidney function, as well as associated anemia.

Dr. Culp: I think we know some things about these kidneys which become clear after reading the entire protocol, but this amount of information was not available at any one point in the chain of events. I am thinking particularly of the events in 1956, when the diagnosis of chronic pyelonephritis was made on the basis of pyuria. I don't think that the information was sufficient for such a diagnosis, particularly since excretory urograms are easy to obtain and are accompanied by a low percentage of complications.

Dr. Hamilton: With your refined technics for doing IVP's, you do have examples of severely uremic patients excreting the dye. I am sure it is not the "reliable" test of kidney function it used to be.

Dr. Culp: When the patient was admitted to this Hospital, she was uremic, and excretory urograms would have shown only the absence of excretion of contrast medium.

I think that the blood urea nitrogen was on the order of 115 mg. per cent. At that level, we would see no evidence of excretion of the opaque material within the period of time during which we ordinarily run excretory urograms. A delayed film, some 24 hours later, might have shown some evidence of renal function. If the blood urea nitrogen is in the neighborhood of 45-50, we frequently are able to see evidence of function, but once it exceeds that level, the excretory studies are usually of no value.

ANATOMICAL DIAGNOSES

1. Bilateral, severe, chronic glomerulonephritis
   a. Uremia
   b. Anemia (clinical diagnosis)
   c. Petechiae
2. Bilateral hemorrhagic bronchopneumonia
3. Hypertension (clinical diagnosis); cardiomegaly

STUDENTS' DIAGNOSES

1. Pyelonephritis
2. Benign arteriolosclerosis
3. Malignant hypertension with possible
   a. Necrotizing arteriolitis
   b. Glomerulonecrosis

DR. KIRKENDALL'S DIAGNOSES

1. Nephrosclerosis from repeated toxemia
2. Chronic pyelonephritis
3. Terminal renal insufficiency.

REFERENCES

1. Dieckmann, W. J.: The Toxemias of Pregnancy, Second Edition. St. Louis, The C. V. Mosby Company, 1952, pp. 641 and 645.
2. Browne, F. J., and Dodds, G. H.: Remote prognosis of toxemias of pregnancy. J. Obst. & Gynaec. Brit. Emp., **46**:443-461, (June) 1959.
3. Medical Advisory Board of the Council for High Blood Pressure of the American Heart Association, quoted in: Goldblatt, H.: Pathogenesis of malignant hypertension. Circulation, **16**:697-699, (Nov.) 1957.
4. Cecil, Russell L., and Loeb, Robert F.: A Textbook of Medicine, Tenth Edition. Philadelphia, W. B. Saunders Company, 1959, p. 1077.
5. Finnerty, F. A., Jr.: Toxemia of pregnancy as seen by internist: analysis of 1,081 patients. Ann. Int. Med., **44**:358-375, (Feb.) 1956.
6. Pollak, V. E., and Kark, R. M.: Toxemias of pregnancy and renal lesion of pre-eclampsia. Am. J. Med., **30**:181-184, (Feb.) 1961.

Coming Meetings

IOWA

Sept. 9-10 **Pediatrics.** S.U.I. College of Medicine, Iowa City

Sept. 12 **Fall Program for Physicians of the 11th District, sponsored by the Page County Medical Society.** Country Club, Clarinda

Sept. 12-13 **Fourteenth Annual Meeting and Scientific Assembly of the Iowa Chapter of the American Academy of General Practice.** Hotel Savery, Des Moines

Sept. 17-18 **Midwest Interprofessional Conference.** Iowa State University, Ames

Sept. 22 **Ninth Annual Symposium on Internal Medicine (Section of Internal Medicine, Iowa Methodist Hospital).** Des Moines

Sept. 28 **"Focus on Youth"—Fall Conference of the Governor's Commission on Children and Youth.** Memorial Union, Iowa State University, Ames

Sept. 28-29 **Urology.** S.U.I. College of Medicine, Iowa City

Oct. 3 **Otolaryngology (S.U.I. College of Medicine).** University Hospitals, Iowa City

Oct. 5 **IMS Conference of County Society Presidents and Secretaries.** Hotel Savery, Des Moines

Oct. 5-6 **Arthritis and Rheumatism (S.U.I. College of Medicine).** University Hospitals, Iowa City

Oct. 13 **Radiology (S.U.I. College of Medicine).** University Hospitals, Iowa City

Oct. 31-Nov. 1 **U. S. Section, International College of Surgeons, Midwestern States Regional Meeting.** Hotel Savery, Des Moines

CONTINENTAL U. S.

Sept. 1-4 **College of American Pathologists.** Palmer House, Chicago

Sept. 4-8 **World Forum on Syphilis and Other Treponematoses (American Venereal Disease Association, American Social Health Association, and USPHS).** Sheraton Park Hotel, Washington, D. C.

Sept. 4-14 **Intensive Review of Internal Medicine (University of Southern California).** Los Angeles County Hospital, Los Angeles

Sept. 6-7 **New Concepts in Arthritis.** University of California, San Francisco

Sept. 6-8 **American Association of Obstetricians and Gynecologists (members and invited guests).** The Homestead, Hot Springs, Virginia

Sept. 9-13 **Thirteenth Biennial International Congress (International College of Surgeons).** Waldorf-Astoria, New York City

Sept. 9-15 **XII International Congress of Dermatology.** Shoreham and Sheraton Park Hotels, Washington, D. C.

Sept. 10 **Board Review, Internal Medicine, Part I.** Cook County Graduate School of Medicine, Chicago

Sept. 10-14 **Surgery of the Cornea.** New York University Postgraduate Medical School, New York City

Sept. 10-14 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Sept. 10-14 **Protoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

Sept. 10-14 **Internal Medicine—A Selective Review.** University of California, San Francisco

Sept. 10-21 **Surgical Technic.** Cook County Graduate School of Medicine, Chicago

Sept. 14 **Sixth Annual Symposium on Infectious Diseases (AAGP and the University of Kansas School of Medicine).** Battenfeld Auditorium, Kansas City, Kansas

Sept. 16-19 **Seventy-third Annual Meeting of the Washington State Medical Association.** Davenport Hotel, Spokane

Sept. 16-19 **Annual Meeting of the Colorado Medical Society.** International Center, Broadmoor Hotel, Colorado Springs

Sept. 17-19 **Research Seminar on Fibrinolysis.** University of Colorado Medical Center, Denver

Sept. 17-20 **Sixty-fourth Annual Meeting, American Hospital Association.** Palmer House and McCormick Place, Chicago

Sept. 17-21 **Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago

Sept. 17-21 **Gynecology, Office and Operative.** Cook County Graduate School of Medicine, Chicago

Sept. 17-21 **Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs (American College of Chest Physicians).** Warwick Hotel, Philadelphia

Sept 17-Nov. 9 **Occupational Medicine.** New York University Postgraduate Medical School, New York City

Sept. 20-21 **Current Concepts in Obstetrics and Gynecology (University of Southern California).** Statler-Hilton Hotel, Los Angeles

Sept. 20-22 **Clinics in the Surgical Specialties.** University of California, San Francisco

Sept. 24-27 **Mental Hospital Institute (American Psychiatric Association).** Americana Hotel, Bal Harbour, Florida

Sept. 24-28 **Surgery of Stomach and Duodenum.** Cook County Graduate School of Medicine, Chicago

Sept. 24-28 **Pulmonary Disease Seminar (University of Colorado Medical Center).** Fitzsimons General Hospital, Denver

Sept. 24-28 **Surgery of Stomach and Duodenum.** Cook County Graduate School of Medicine, Chicago

Sept. 26-28 **Aviation Medical Seminar (Aviation Medical Service of the Federal Aviation Agency and the University of Nebraska College of Medicine).** Omaha

Sept. 26-28 **Michigan State Medical Society.** Sheraton-Cadillac Hotel, Detroit

Sept. 27-28 **Symposium on Birth Defects (The National Foundation and Vanderbilt University School of Medicine).** Vanderbilt Hospital, Nashville, Tennessee

Oct. 1-3 **Kansas City Southwest Clinical Society.** Hotel Muehlebach, Kansas City

Oct. 1-3 **Glaucoma.** University of California, San Francisco

Oct. 1-4 **Forty-seventh Annual Scientific Assembly of the Interstate Postgraduate Medical Association.** Palmer House, Chicago

Oct. 1-5 **Gynecological Endocrinology.** New York University Medical School, New York City

Oct. 1-5 **Basic Electrocardiography.** Cook County Graduate School of Medicine, Chicago

Oct. 1-5 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Oct. 1-5 **Basic Mechanisms of Internal Medicine (American College of Physicians).** Medical College of Virginia, Richmond

Oct. 1-5 **Difficult Contemporary Problems in Internal Medicine (American College of Physicians).** University of Oregon Medical School, Portland

Oct. 1-12 **Clinical Uses of Radioisotopes.** Cook County Graduate School of Medicine, Chicago

Oct. 2-3 **Twenty-second Congress on Occupational Health (AMA Council on Occupational Health).** Somerset Hotel, Boston

Oct. 2-5 **American Roentgen Ray Society.** Shoreham Hotel, Washington, D. C.

Oct. 2-5 **Thirteenth Annual Meeting of the Animal Care Panel.** Conrad Hilton Hotel, Chicago

Oct. 3-5 **American Association of Medical Clinics.** Multnomah Hotel, Portland, Oregon

Oct. 3-5 **American Academy for Cerebral Palsy.** Americana Hotel, Bal Harbour, Florida

Oct. 4-6 **First National Congress on Mental Illness and Health (AMA with cooperation of the American Psychiatric Association).** Palmer House, Chicago

Oct. 5-7 **Pediatric Infections.** University of California, San Francisco

Oct. 8-10 **Third Annual Program Conference of Blue Shield Plans.** Americana Hotel, Miami Beach, Florida

Oct. 8-10 **Indiana State Medical Association.** French Lick-Sheraton Hotel, French Lick, Indiana

Oct. 8-10 **Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago

Oct. 8-12 **General Practice Review.** Cook County Graduate School of Medicine, Chicago

Oct. 8-12 **Advances in the Medical Aspects of Cancer (American College of Physicians).** Memorial Hospital, Memorial Sloan-Kettering Cancer Center, New York City

Oct. 8-19 **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

Oct. 9-12	**American Dietetic Association.** Miami Beach Convention Hall, Miami Beach, Florida
Oct. 10-11	**Medicine in Industry.** University of California, San Francisco
Oct. 10-12	**International Symposium on Comparative Medicine (The Animal Medical Center).** Hotel Waldorf-Astoria, New York City
Oct. 11-13	**Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago
Oct. 12-13	**Drug Therapy in Clinical Practice.** University of California, San Francisco
Oct. 12-13	**Nineteenth Annual Meeting of the American Medical Writers' Association.** Sheraton-Park Hotel, Washington, D. C.
Oct. 13-19	**American School Health Association.** Hotel Barcelona, Miami Beach
Oct. 15	**American Association of Public Health Physicians.** Fontainebleau Hotel, Miami Beach
Oct. 15-19	**Advances in Medicine.** Cook County Graduate School of Medicine, Chicago
Oct. 15-19	**Annual Clinical Congress, American College of Surgeons.** Atlantic City, New Jersey
Oct. 15-19	**Biologic Foundations for the Medicine of Tomorrow (American College of Physicians).** University of Wisconsin Medical School, Madison
Oct. 17	**Society for Adolescent Psychiatry.** New York City
Oct. 17-21	**American Society of Clinical Hypnosis.** Chicago
Oct. 18-20	**American College of Obstetricians and Gynecologists, District VI.** Hotel Leamington, Minneapolis
Oct. 20-25	**American Fracture Association.** Huntington-Sheraton Hotel, Pasadena, California
Oct. 20-26	**Annual Otolaryngologic Assembly (Department of Otolaryngology, University of Illinois College of Medicine).** Chicago
Oct. 21-24	**Interstate Postgraduate Medical Association of North America.** Palmer House, Chicago
Oct. 21-26	**American Society of Anesthesiologists, Inc.** Statler Hilton Hotel, New York City
Oct. 22-23	**American Cancer Society.** Biltmore Hotel, New York City
Oct. 22-26	**Blood Vessel Surgery.** Cook County Graduate School of Medicine, Chicago
Oct. 22-26	**Clinical Cardiopulmonary Physiology (American College of Chest Physicians).** Knickerbocker Hotel, Chicago
Oct. 23-25	**Clinical Pathology in Medical Practice (Medical College of Georgia and Foundation).** Augusta
Oct. 25	**Symposium on School Health.** University of Kansas School of Medicine, Kansas City, Kansas
Oct. 25-27	**Obstetrics and Gynecologic Surgery.** University of California, San Francisco
Oct. 25-31	**Association of American Medical Colleges.** Biltmore Hotel, Los Angeles
Oct. 27-Nov. 1	**American Academy of Pediatrics.** Palmer House, Chicago
Oct. 29-31	**Twenty-seventh Annual Convention of the American College of Gastroenterology.** Morrison Hotel, Chicago. Followed by Annual Course in Postgraduate Gastroenterology at the Morrison and at Cook County Hospital, November 1-3
Oct. 29-31	**American Association for the Surgery of Trauma.** The Homestead, Hot Springs, Virginia
Oct. 29-Nov. 1	**Thirtieth Annual Assembly of the Omaha Mid-West Clinical Society.** Civic Auditorium, Omaha
Oct. 29-Nov. 1	**Expanded Surgery of the Nasal Septum and Closely Related Structures (Dept. of Otolaryngology of Loma Linda University School of Medicine and the American Rhinologic Society).** Los Angeles
Oct. 29-Nov. 2	**The Rheumatic Diseases: Pathology, Diagnosis and Treatment (American College of Physicians).** Robert B. Brigham Hospital and Peter Bent Brigham Hospital, Boston
Oct. 29-Nov. 2	**Treatment of Varicose Veins.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 2	**Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 9	**Urology.** Cook County Graduate School of Medicine, Chicago
Oct. 31-Nov. 3	**American Association of Blood Banks.** Peabody Hotel, Memphis, Tennessee
Oct. 31-Nov. 3	**Congress of Neurological Surgeons.** Shamrock Hilton Hotel, Houston, Texas

ABROAD

Sept. 17-21	**Colloquium on Hormones and the Kidney.** London. Write Mr. P. C. Williams, c/o Imperial Cancer Research Fund, Burtonhole Lane, London
Sept. 17-22	**International Union Against Tuberculosis.** Paris. Write International Union Against Tuberculosis, 15 rue Pomereau, Paris 16
Sept. 17-24	**Eighteenth International Congress of the History of Medicine.** Warsaw and Cracow, Poland. Write Organizing Committee, International Congress of the History of Medicine, Warszawa, Chocimska 22, Poland
Sept. 20	**Fourth International Conference on Surgery of the Hand.** Paris. Write Dr. Luc Gosse, c/o Hospital de Nanterre, 3 av. de la Republique, Nanterre (Seine), France
Sept. 28-30	**Fifth International Colloquium on Medical Psychology.** Brussels and Louvain. Write Dr. P. H. Davost, 2 rue de Rohan, Rennes, France
Oct.	**American Society of Plastic and Reconstructive Surgery.** Hawaiian Village Hotel, Honolulu. Write T. Ray Broadbent, M.D., 508 East South Temple, Salt Lake City, Utah
Oct. 2-5	**International Congress for Prophylactic Medicine and Social Hygiene.** Bad Godesberg, West Germany. Write: D. A. Rottmann, Liechensteinstrasse 32, Vienna, Austria
Oct. 7-13	**World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.
Oct. 22-28	**International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.
Nov. 11-16	**World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19
Dec.	**International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines
Jan. 25-Feb. 6, 1963	**Operation: Surgical Specialties (West Indies Congress of the International College of Surgeons).** Cruising aboard the S.S. Santa Rosa; clinical meetings in Puerto Rico, Jamaica, Haiti, Venezuela, Netherland West Indies. For arrangements contact International Travel Service, Inc., 116 South Wabash Avenue, Chicago 3
Feb. 20-24, 1963	**Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Digitalis for Glaucoma

Digitalis, long used for heart failure, has been found useful in treating several types of glaucoma, according to a report by Kenneth A. Simon, M.D., and Sjoerd L. Bonting, Ph.D., of the National Institute of Neurological Diseases and Blindness, in the August issue of ARCHIVES OF OPHTHALMOLOGY. They say they have used digitalis in treating 16 patients with chronic simple glaucoma, and five patients with congenital and juvenile glaucoma.

Digitalis, they report, alleviates the main characteristic of glaucoma—pressure within the eye—by reducing production of the fluid whch fills the eye cavity. The drug inhibits an enzyme involved in the formation of the fluid, cutting fluid production by 45 per cent. This effect is comparable with that produced by acetazolamide, the drug currently used to reduce ocular pressure in glaucoma. Digitalis could be used, they think, when side effects or sensitivity precludes the use of acetazolamide.

Gonorrhea

A recent report by Tiedemann and associates* records the results obtained at the Atlanta Health Department in the treatment of acute gonorrheal urethritis in 4,400 male patients. The unusual aspect of the study was the use of 18 schedules of treatment in which 11 different antibiotic preparations were used. The number of patients treated on each schedule varied from 50 to 505.

Pretreatment diagnoses and decisions as to treatment failure were based on clinical evidence of gonorrheal urethritis and a stained smear showing gram-negative intracellular diplococci. In 75 positive patients, confirmation of the diagnosis was obtained in 95 per cent by specific fluorescent antibody identification and by culture and sugar fermentation.

A two-week post-treatment period of observation revealed that the treatment failures of the various schedules ranged from 3.4 per cent to 29.4 per cent. The most effective drug evaluated was oral phosphate potentiated tetracycline. The drug when combined with amphotericin B in a total of 3.0 Gm., per day, given in divided doses of 500 mg. every four hours, had a failure rate of 3.4 per cent. Without the addition of amphotericin, the same drug in a 3.0 Gm. dose had a failure rate of 3.6 per cent. A single 1.5 Gm. dose of the drug had a failure rate of 5.7 per cent. Although patients were questioned carefully, there were no complaints of side-effects from the use of the drug. No change in the sensitivity of the gonococcus to tetracycline has been observed. According to the authors, comparable results were obtained with oral phosphate potentiated tetracycline in the health departments in Detroit and Houston.

Intramuscular penicillin in doses of 1,200,000 units proved superior to oral penicillin. Intramuscular aqueous penicillin G had a failure rate of 8.4 per cent, and benzathine penicillin G failed to cure in 7.0 per cent. A single dose of 1.0 Gm. of chloramphenicol given intramuscularly to 397 patients had a failure rate of 6.5 per cent. A 2.0 Gm. dose of streptomycin failed to cure 8.3 per cent of patients to whom it was given.

Though the cost of phosphate potentiated tetracycline may limit its use in public health clinics, the individual physician will welcome a highly effective anti-gonorrheal drug which can be given orally with a minimum of side-effects.

* Tiedemann, J. H., Hackney, J. F., Simpson, W. G., and Price, E. V.: Evaluation of tetracycline phosphate complex and other antibiotics in treatment of gonorrhea in males. PUBLIC HEALTH REP., 77:485-490, (June) 1962.

Malignant Melanomas

Malignant melanoma is a relatively rare disease which has been looked upon as hopeless and incurable, but recent reports in the literature point out that instead of having a hopeless prognosis, the disease, if properly treated, is curable in a high percentage of cases.

There appears to be a great deal of confusion about malignant melanoma, and many misconceptions exist. It is generally recognized that the origin of malignant melanoma is the anaplasia or malignant transformation of a nevus. According to Dorland, a nevus is a circumscribed new growth of the skin of congenital origin. A mole is defined as fleshy nevus, and the term *mole* is applied loosely to any blemish of the skin. In dermatologic literature, *mole* and *nevus* are used more or less interchangeably without precise definition, and this carelessness would appear to contribute to the confusion about malignant melanoma.

According to present concepts, moles or nevi are all congenital in origin, and the time of their origin and the time of their earliest appearance are not the same. Studies have shown that among newborn infants, only one in 40 have moles that can be detected, whereas the average adult is the possessor of 15 moles. Melanocytes of the eye, skin, and mucous membranes are thought to be of neuroectodermal origin, migrating to the skin from the neural crest to form nevus cells. Nevi or moles which contain nevus cells are usually pigmented, or perhaps more accurately, it is the collection of nevus cells in the epidermis, dermis, or both which gives rise to the pigmented mole or nevus.

Dermatologists have defined nevi as pigmented growths of the skin, mucosa and eye. They have divided them into three basic types: the intradermal, the junctional, and the compound. The intradermal nevus—"the common mole" is ubiquitous, represents about 75 per cent of all nevi, and rarely becomes malignant. The junctional nevus is the most important of the group because it possesses the potentiality of transformation to a malignant melanoma. This type of nevus is called junctional because when examined under the microscope the aggregation of nevus cells is found to occur at the junction of the dermis and epidermis. The third classification, the compound nevus, when examined histologically, is found to consist of both intradermal and junctional elements. It is the common nevus in adolescence, but the junctional element is usually lost after puberty, and it seldom becomes malignant.

The junctional nevi usually appear to be quite

superficial. They usually are quite small, varying from a few millimeters to 2 cm. in diameter. They are ordinarily smooth, hairless and macular or slightly elevated, and they vary in color from light brown to dark brown or black. Nevi which occur on the soles and palms, the fingers and toes, the genitalia, and the mucous membranes are usually of the junctional type. Because melanomas frequently occur in these sites, junctional nevi in these areas should be removed. Likewise it is recommended that nevi which are subjected to irritation by the friction of clothing should be excised. Malignant transformation of the junctional nevus is especially likely to occur in people with fair skin and blue eyes, and in individuals who freckle. Though malignant melanomas in childhood are exceedingly rare, the recommended time for the removal of junctional nevi is before puberty. The skilled dermatologist can frequently recognize this type of nevus clinically, but all pigmented lesions which have been excised should be subjected to histologic examination, preferably by a pathologist especially qualified in tumor pathology. Nevi, like melanomas, are radioresistant, and x-ray and radium are never employed in their treatment.

It is recognized that a malignant melanoma may metastasize to the regional lymph glands, even though the skin lesion may appear perfectly benign. Ordinarily, malignant transformation is heralded by a sudden change in a long-existent pigmented mole. The usual changes are an elevation or enlargement of the lesion. Pigmentation becomes deeper, ulceration or bleeding many occur, and localized discomfort or pain may be present. All nevi which are suspicious or are showing change should be assumed to be malignant melanomas until proved otherwise. Wide surgical excision should be done under local anesthesia.

If a qualified pathologist finds the excised lesion to be a malignant melanoma, radical surgical treatment is imperative. Ochsner,* in a recent report, recommends radical extirpation. The New Orleans surgeon employs wide excision of the original site, and the wound frequently necessitates grafting. The deep fascia is excised, a strip of fascia is removed up to the regional nodes, and the regional lymph nodes are dissected. It is urged that the dissection of the regional nodes be done at the initial operation, even though the nodes are not palpable. One-half of the patients with no palpable nodes have had histologic evidence of involvement of the glands.

The Ochsner Clinic reported upon experience with 203 consecutive patients with malignant melanoma treated between 1942 and 1960. One-hundred-fifty-five patients were followed for periods from six months to 20 years. The 48 patients who were not followed were presumed to have been victims of the disease. Of 52 patients who were subjected to wide excision and regional-node dissection within two weeks of the tissue diagnosis, 64 per cent survived five years, and after 10 years 53 per cent were still living. Twenty-eight patients had received their initial treatment elsewhere, and were seen at the Clinic several months later. At the time of surgical treatment, this group had no evidence of distant metastasis. The 5-year survival rate was 27 per cent, and after 10 years 26 per cent were still living. There were 123 patients who had evidence of distant metastasis on admission to the Clinic. The 5- and 10-year survival rates were 2 per cent and 1 per cent respectively. The treatment given to that group was palliative.

Moles of the junctional-nevus type which are present in areas that are subject to irritation should be removed. Moles in any location should be widely excised if they are undergoing change, and all excised lesions should be examined by a competent pathologist. If malignant change is demonstrated histologically, wide excision and regional node dissection should be performed promptly.

The early recognition and the prompt surgical treatment of malignant melanoma offer a surprisingly good prognosis.

* Ochsner, A., Sr., and Harpole, D. H : Malignant melanoma; its prognosis as influenced by therapy. ANN. SURG., **155**:629-638, (May) 1962.

Subacute Streptococcal Endocarditis

Of unusual interest is the report by Bunn and Lunn* on a late follow-up of 64 patients with subacute streptococcal endocarditis treated with penicillin in the hospitals of the State University of New York Upstate Medical Center. These patients were under treatment between January, 1948, and October, 1956. Clinical observations were made on 59 of the original group from the time of their hospital discharge until death, or if living, to October, 1961. Five patients who were well at the time of discharge from the hospital were lost to follow-up.

The diagnosis of the initial cardiac infection was based upon the following criteria: (1) presence of a positive blood culture of streptococci in 46 patients with heart disease, fever and petechiae; (2) findings at the time of cardiac surgery in four patients in whom the clinical picture substantiated the diagnosis; and (3) clear clinical evidence of the disease in 14 patients with consistently negative blood cultures. In 6 of 14 patients with negative blood cultures, the diagnosis was confirmed at necropsy.

The average period of penicillin therapy in the hospital was 33 days, and all patients received uninterrupted treatment. Penicillin was administered parenterally in doses which ranged from 5 to 12

* Bunn, P. and Lunn, J.: Late follow-up of 64 patients with subacute bacterial endocarditis treated with penicillin. AM. J. MED. SC., **243**:549-556, (May) 1962.

million units daily. One patient received 20 million units daily. Streptomycin, 1.0 Gm. daily, was also given to 21 patients who had a fecal streptococcal infection. All patients with acute endocarditis caused by staphylococci and pneumococci were omitted from the study. Six patients had relapses or recurrences with positive blood cultures, and were treated successfully.

As of October, 1961, there were 28 patients living, from 5 to 13 years after treatment. Twenty-two of this group were essentially well, had compensated heart disease and were working. Six patients were in mild to severe heart failure.

At the completion of the follow-up study, 31 patients had died. Fifteen had died within 90 days after treatment—six from rupture of the aortic valve; five from congestive failure; three from vascular accidents; and one from uremia. Two adolescents died in the first year, one from congestive failure and one from a vascular accident. Among the 14 patients who died after one year, six had unrelenting heart failure and four were in failure both at the start and at the end of the period of treatment. One 63-year-old man died as the result of a ruptured aortic valve seven years after therapy. Five patients succumbed to vascular accidents, and two deaths occurred after surgery for the correction of congenital defects.

The study demonstrated the importance of the type of heart disease and of the valve involved. In general, patients with endocarditis and arteriosclerotic changes in the aortic valve did poorly, and similarly, patients with endocarditis of the aortic valve superimposed upon rheumatic heart disease had a low survival rate. In contrast, the majority of patients in whom subacute endocarditis complicated mitral stenosis, congenital heart defects, and undiagnosed cardiac disease survived at least five years.

Twenty-nine of the 59 patients followed for a minimum of five years had some degree of heart failure at the time of the initial treatment of endocarditis. Only six of this group survived five years, and two of them subsequently died in failure. Irrespective of the type of their valvular disease, patients with congestive failure and endocarditis had little hope of survival.

The age of the patient at the time of the onset of endocarditis had a significant influence on survival and upon the health of the survivors. More than 60 per cent of patients under 50 years of age survived five years, and most of them remained well. In patients between 51 and 65 years of age at onset, the 5-year survival rate was about the same as for those under 50 years of age, but the majority were in congestive failure, and three-fourths died in failure between the sixth and thirteenth year of the follow-up. Females in each age group fared slightly better than the males, but at the conclusion of the study the number in failure was the same.

The authors concluded from their experience that except for patients with aortic valve disease, congestive failure, and advancing years, the lives of patients with subacute endocarditis who survived the first year were not altered unfavorably. There were no immediate cures of an infection in which the organism was not sensitive to penicillin.

Bleeding Peptic Ulcer

The patient with a bleeding peptic ulcer is a challenge to the clinician and the surgeon, and requires skilled management, sound judgment and cooperative effort. If operation is necessary, proper timing is fundamental. A report by Bowers and Gompertz* records experience with bleeding peptic ulcer treated by a conservative plan of management over a period of 14 years. This experience and the principles of management should be helpful to other physicians confronted by this serious problem.

The patients were admitted to the medical section of Kennedy Hospital, Memphis, Tennessee. Treatment consisted of bed rest, with privacy, prompt and adequate replacement therapy, neutralization, feeding by mouth, and psychotherapy to reduce irritants and to develop confidence in the cessation of bleeding and in survival.

In the patients considered most likely to continue bleeding, surgical consultation was called for, and a deadline of 48 hours for medical therapy was set up. The response of the patient to treatment determined whether he was continued on medical management or whether surgery was necessary to stop the bleeding. It was at this point that cooperation between clinician and surgeon was so necessary, and when dedicated teamwork was required. According to the plan of management, hemorrhage was to be stopped by the safest method, and conservatism was to be employed if possible.

In deciding whether an emergency operation was necessary, both the gastroenterologists and the surgeons were guided by the belief that an ulcer will bleed more if (a) the age of the patient is 50 years or older; (b) obstruction is present, which prevents effective neutralization; (c) the ulcer is gastric; (d) the patient has diabetes; (e) bleeding ceases under medical therapy but later, while under treatment, recurs; (f) the patient is convinced that he will bleed to death; and (g) replacement is adequate, but great amounts of blood continue to be needed, particularly if the blood type is difficult to obtain.

Of the 643 patients, 384 were treated medically. Twelve patients in the medically treated group

* Bowers, R. F. and Gompertz, M. L.: Conservative treatment of bleeding peptic ulcer; fourteen years' experience. ANN. SURG., **155**:481-488, (Apr.) 1962.

died, and all died of hemorrhage. Two of the deaths occurred in patients considered to be dying of active pulmonary tuberculosis. Terminal bronchogenic carcinoma was present in one; one patient had a recent hemiplegia; one patient was moribund on admission; one had such massive adhesions from previous surgery that operation was considered too hazardous; one patient had rheumatic heart disease; three had cirrhosis of the liver; and one was thought to have telangiectasia. One death early in the series was attributed to procrastination, and it was this case which prompted the creation of the 48-hour deadline.

Two hundred fifty-nine patients were treated surgically. Fifty-eight were treated as surgical emergencies. Interval operations were performed in 201 cases following medical treatment. Among the 259 surgical patients, preoperative bleeding was considered mild in 97, with one death, and moderate-to-severe bleeding in 161, of whom 11 died. The over-all surgical mortality was 4.6 per cent. Nine patients died following emergency surgery—a death rate of 15.5 per cent. The interval surgical mortality was 1.5 per cent. Four deaths were attributed to technical errors and three to probable errors. The remaining deaths were caused by pulmonary embolism, severe hepatic cirrhosis, continuous shock from preoperative hemorrhage, acute psychosis, and peritonitis (in a patient who had diffuse fibrosis of the stomach and esophagus). The overall incidence of complications following surgery was 20.5 per cent—41.4 per cent of the emergency group, and 14.4 per cent of those who had an interval operation.

Since May, 1960, emergency operations on 14 desperately ill patients have consisted of vagotomy, suture of the ulcer base, and pyloroplasty. There were no deaths in this group, and this good fortune was attributed to the lesser extent of the operation and the lesser amount of manipulation. There have been no recurrences of ulcers in this group.

There is perhaps a tendency for the clinician to err on the side of conservatism in the management of bleeding peptic ulcer. On the other hand, it is quite within the realm of possibility for the surgeon to be impatient for operative treatment. The 48-hour deadline for conservative therapy as described by Bowers and Gompertz* has much to recommend it, and their results are commendable. In the management of the patient with bleeding peptic ulcer, there must be mutual confidence between the gastroenterologist and the surgeon. There can be no jealousy or friction over the philosophy of treatment. If an emergency operation is necessary, the use of vagotomy, suture of the ulcer base, and pyloroplasty appears to be the treatment of choice, in preference to partial gastric resection.

New Dean of SUI College of Medicine

The appointment of Dr. Robert C. Hardin as dean of the State University of Iowa College of Medicine was approved on August 10 by the State Board of Regents. Dr. Hardin, who has been serving as associate dean for clinical affairs and professor of internal medicine at SUI, succeeds Dr. Norman B. Nelson, who resigned in June to accept a position in California.

"The recommendation of Dr. Hardin to me by the committee from the College of Medicine confirms a confidence I have held for some time in his potential as a medical dean," said SUI President Virgil M. Hancher. "Consequently, to endorse the committee's findings and to forward his name to the Regents as my recommendation has been a distinct pleasure."

The SUI president continued: "Everything in Dr. Hardin's long record of teaching, medical service, research and administrative contribution to the College of Medicine and to the University supports the recommendation and his appointment to the deanship of the College of Medicine. His professional standing, his broad acquaintance in the medical community, and the confidence of his colleagues provide high promise for the continued

Dean Hardin

development of the College of Medicine and the enhancement of its contribution to medical science and teaching."

Dr. Rubin H. Flocks, chairman of the SUI faculty committee that reviewed the qualifications of more than 40 candidates for the position from all sections of the nation, said, "I'm very happy to hear that Dr. Hardin has been appointed dean of the College of Medicine. His demonstrated professional and administrative skill, leadership ability, and his experience in teaching, research and service give him the background necessary to stimulate the faculty and direct the College of Medicine in carrying out its responsibilities to the people of Iowa."

Dr. Hardin, 49, was born in Portland, Oregon, and attended grade and high school at Buffalo Center, Iowa. He received two degrees from SUI—a B.S. with distinction in 1935, and his medical degree in 1937. With the exception of one year, he has been a member of the faculty of the SUI Department of Internal Medicine since 1945. During 1949-50, he served as medical director of the Connecticut Regional Blood Program of the American National Red Cross.

Following his graduation from the College of Medicine in 1937, Dr. Hardin interned at University Hospitals and then completed three years of residency training at SUI in the specialty of internal medicine. He served four years in the U. S. Marine Corps during World War II, and rose from the rank of captain to that of lieutenant colonel. He was awarded the Legion of Merit for his service as director of the European Theatre of Operations' Blood Bank from 1943 to 1945. During the war, he also served as senior consultant on transfusion and shock for the army in Europe.

Dr. Hardin became an instructor in internal medicine at SUI in 1945 and rose to the rank of professor in 1953. He was named assistant dean for clinical affairs in the college in 1950 and associate dean in 1959.

The new dean's major medical interests are in the fields of diabetes and endocrinology. He is a member of the council of the American Diabetes Association, chairman of its committee on scientific awards, vice-chairman of its committee on professional education, and a member of its steering committeee on postgraduate courses.

He is a consultant to the Veterans Administration Hospitals in Des Moines and Iowa City, and a consultant on pathology and allied sciences for the Office of the Surgeon General of the United States Public Health Service.

Dr. Hardin is a member of the committee on career development awards and research professorships of the National Institute of Arthritis and Metabolic Diseases and also serves as chairman of the Institute's special review committee on the University Group Diabetes Program.

Dr. Hardin was a member of the IMS Committee on National Emergency Medical Service from 1953 through 1961, serving as chairman from 1954-1958. He has been a member of the Committtee on Blood Banking and was chairman from 1955-1956. He also worked in establishing the Iowa Interprofessional Association civil defense and disaster programs and was one of eight area chairmen in that project.

Among the many organizations of which Dr. Hardin is a member are the American College of Physicians (fellow), the Johnson County and Iowa Medical Societies, the American Medical Association, the Royal Society of Medicine of England (honorary), the New York Academy of Medicine, the Society of Medical Consultants to the Armed Forces, the American Association for the Advancement of Science, and Sigma Xi, honorary scientific society, and Alpha Omega Alpha, honorary medical society.

YOUR COMMUNITY

...is a better place for you and your family because you give the United Way

UNITED

President's Page

The IMS will hold its Fall Conference for County Medical Society Officers on Friday, October 5, at the Savery Hotel, in Des Moines.

The program will start at 10 a.m., late enough so that most doctors can arrive on time without having had to leave home before daybreak. And it will conclude at 4 p.m., early enough so that the men who wish to see the Iowa-Southern California football game on Saturday can drive to Iowa City before dark on Friday night, if they choose to do so.

The subjects to be taken up at the Conference include (1) Legislation, state and national; (2) Prepayment insurance; (3) Interprofessional relations; and (4) Public relations, including some outstanding county public relations projects.

Invitations are being extended to all county medical society officers, and in addition to all of the other men who are active in legislative and Blue Shield affairs.

The State Society officers hope that all such physicians will make every effort to attend that meeting.

George K. Scanlon

President

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

GYNECOLOGY, by *Langdon Parsons*, M.D., and *Sheldon C. Sommers*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $20.00).

GYNECOLOGY AND OBSTETRICS, by *John William Huffman*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $28.00).

CLINICAL BIOCHEMISTRY, SIXTH EDITION, by *Abraham Cantarow*, M.D., and *Max Trumper*, Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $13.00).

BOOK REVIEWS

TEXTBOOK OF PATHOLOGY, WITH CLINICAL APPLICATIONS, SECOND EDITION, by *Stanley L. Robbins*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $19.00).

In the preface to the second edition of this excellent text in general pathology, the author says, "There was a definite hazard that in the process of revising, the effectiveness of the first edition might be lost." That fear has not been realized, and the new book presents a concise, lucid and well illustrated survey of general pathology, with considerable clinical correlation in all of the areas discussed.

The two-column format and the illustrations are superb, and the systematic organization of the book permits ready reference. There is a very complete index.

The bibliography has been reviewed and updated for the second edition, and a particularly useful feature consists of the author's comments on the value of individual references listed at the ends of the various chapters.

Specialists in the respective fields have contributed the chapters on the nervous system, the oral cavity, the liver, the skin, inflammation and repair, and the adrenals.

Of particular interest to physicians in general, is the logical presentation of diseases of the blood and bone marrow.

Newer technics, including electron microscopy, are used to illustrate the diseases presented. A particularly useful section is the one devoted to diseases of infancy and childhood.

The book can be recommended as an up-to-date pathology text that is very readable and contains an excellent current bibliography. It has a place on the reference shelf of any physician who wants a ready source of information regarding systemic pathology and its clinical applications.

The clarity of the presentation makes the book particularly useful for medical students, interns and residents in all phases of postgraduate training.—*John W. Green, Jr.*, M.D.

PHYSICAL DIAGNOSIS, SIXTH EDITION, by *Ralph H. Major*, M.D., and *Mahlon H. Delp*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $7.50).

This textbook, in its sixth edition, contains 330 pages and over 500 illustrations. There is a chapter on history taking and recording. The pain syndromes are presented in one chapter. Technics of examination and interpretation of findings are discussed for each of the systems or regions. The authors have included interesting notes on the history of physical diagnosis. The illustrations are striking, particularly Figure 257, in which a lateral x-ray of an emphysematous chest has been mounted in an inverted position.

I found this small volume more stimulating than I had anticipated.—*Loren G. Peterson*, M.D.

ANTONY VAN LEEUWENHOEK AND HIS "LITTLE ANIMALS," BEING SOME ACCOUNT OF THE FATHER OF PROTOZOOLOGY AND BACTERIOLOGY AND HIS MULTIFARIOUS DISCOVERIES IN THESE DISCIPLINES, collected, translated and edited, from his printed works, unpublished manuscripts and contemporary records by *Clifford Dobell*. (New York, Dover Publications, Inc., 1960. $2.25).

The Dover Publications are reproductions, in paper-backed volumes, of famous scientific works little known to the average reader. The present volume describes something of the life and discoveries of van Leeuwenhoek, who lived in the Seventeenth Century and who, by refining previously existing crude microscopes and by using the utmost of patience and honesty, discovered many parasites and bacteria which the Nineteenth Century was to bring into the limelight. Van Leeuwenhoek was untrained—not a doctor or even a scientist—and yet he was able, by his perseverance and remarkable ability to separate scientific observations from mere opinions, to make preliminary discoveries of the microscopic structures of plants, animals and minerals.

The book is a labor of love which took about 30 years to write. Research into the life and writings of van Leeuwenhoek was difficult because of the rather garbled Old Dutch in which he set down his discoveries. Van Leeuwenhoek was uneducated, and therefore could not write in the Latin that was the universal scholarly language of his day, nor could he write in fluent literary Dutch.

The book dispels many fictions about this investigator. Van Leeuwenhoek *did not* invent the microscope, but was the father of protozoology and bacteriology.

The book deserves reading by all those interested in the background of modern-day biologic science. —*Daniel A. Glomset*, M.D.

CURRENT PSYCHIATRIC THERAPIES, VOL. II, ed. by *Jules H. Masserman*, M.D. (New York, Grune & Stratton, Inc., 1962. $8.75).

This work, which is a composite of 34 different articles, actually is more like a bound scientific magazine than a book, even though the materials were selected with the idea of creating an authoritative and comprehensive treatise on current practice in the psychiatric field. In expressing his belief that "behavioral scientists are discarding outmoded dogmas and stereotyped practices, and are seeking more rational and effective methods for helping the ill and troubled human beings who are their concern," the editor outlines the basis upon which the articles have been selected.

It is difficult to characterize such a composite as this. In general, it would seem that there is a tacit assumption that we cannot really expect to change mental patients and that it is up to society to make the adjustment. This view is emphasized especially in the last two articles entitled "The Therapy of Human Injustice," by L. J. West, and "Or Shall We All Commit Suicide," by the editor. On the pessimism in regard to the results of psychotherapy, the following delightful comment appears: "The psychotherapist who does not look squarely at these problems places himself in the position of the March Hare who defended his use of butter in watch repair on the pathetic ground that 'it was the best butter, you know.'"

The reviewer particularly enjoyed the courageous empiricism of James Gallagher's article on "Educational Methods With Brain-Damaged Children," but generally was unimpressed by the various institutional psychotherapeutic devices which set the reduction of life's stress and adjustment as a goal.

Whether one would or wouldn't like to own this book would depend on his particular prejudices. It is a good survey of current concepts, but it is somewhat limited as to practical value.—*Edwin O. Niver*, M.D.

PSYCHOANALYTIC EDUCATION (SCIENCE AND PSYCHOANALYSIS, VOL. V), ed. by *Jules H. Masserman*, M.D. (New York, Grune & Stratton, Inc., 1962. $9.75).

This symposium opens with the general theme that "education in psychoanalysis should be education for freedom of thought, for liberation of creativity and spontaneity, and for experimentation at every and any level." The Program Committee for the symposium selected those people considered most representative to discuss the various aspects of this concept.

There is some discussion of the need for historical study of Freud's work in order to emphasize its central theme—to uncover the nature of the unconscious by encountering and eliminating resistances that hide it. Some stress is also laid on the idea that Freud was a biologist and that there is some incongruity in the tendency to make psychoanalysis into a social science. However, Allen Wheelis is quoted as saying that many of Freud's ideas proved to be culture-bound. A neurosis is a social event and needs a social climate in order to manifest itself. Thus the difficulties in formulating what constitutes an adequate program of education arise from the fact that we no longer live in a comfortable, schematicized society, and much of what appears as resistance to revealing the unconscious actually seems to be due to an irrationality that pervades the entire social enterprise.

The remark is made that scientists are no longer involved in a search for absolute truth. They do not ask, "What is it?" Rather, they ask, "What is it like?" and they look for models and analogies. The problem of doubting causality in science thus has involved analytic ideas which equate emotions to forces and cathexis to charges.

In the present social milieu, there is difficulty in finding the type of classical case that meets the requirements of analytical authority. It is pointed out that much of the analyst's time is now spent with patients whose difficulties are classed vaguely as neuroses and who are looking for answers to the questions "Who am I, really?" and "Why am I unhappy?" If one follows Freud's dictum that "psychoanalysis is not in a position to create a philosophy of life," then a question arises as to how students should be trained to face problems involving a weakness of identity. The consensus is that in such a situation the analyst cannot remain aloof. On the other hand, however, it is admitted that the value system of psychoanalysis does not deal in universals, but rather in ideas derived from Western culture.

Thus, without greater unanimity than exists between the present-day psychoanalytic schools as to a unified theory of human behavior, the reviewer is left with the impression that training for the role of analytic therapist entails more problems than opertional concepts.—*Edwin O. Niver*, M.D.

PRIMER OF CLINICAL MEASUREMENT OF BLOOD PRESSURE, by *George E. Burch*, M.D., and *Nicholas P. DePasquale*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $5.50).

This small volume represents a big effort by the two authors to get doctors to make more accurate measurements of arterial blood pressure in their day-to-day practice of medicine. Two chapters, indeed, are devoted to explaining the technic of measuring arterial blood pressure properly using the current clinical manometers (both the mercury and the aneroid type). A long series of possible errors are listed, and the various factors that affect arterial blood pressure are discussed.

The authors don't let their subject drop there, however, but have used other chapters to a review of the history of blood pressure recording, and to a discussion of the physiology of the arterial blood pressure. Furthermore, they have compiled tables of normal values of arterial blood pressure for the various ages and sexes. Finally, there is a chapter devoted to the diagnostic applications of arterial blood pressure measurements.

I am sure that the average medical practitioner will find the history of arterial blood pressure recording of considerable interest, but frankly, he will find nothing else that is new to him in the remainder of the book.

As an *introduction* to the subject of blood pressure measurement, this volume is excellent. The illustrations and graphs are good.—*George E. Montgomery*, M.D.

Hearing Conservation

Importance of Early Detection of Hearing Loss

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, *consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.*

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of representatives from the section on otolaryngology of the Iowa Medical Society, from the Academy of Otolaryngology and Ophthalmology, from the American Academy of General Practice, from the State Department of Health, from the Department of Otolaryngology and the Department of Speech Pathology and Audiology at S.U.I., from the Division of Special Education of the State Department of Public Instruction, from the Iowa School for the Deaf, and from the Des Moines Chapter of the American Hearing Society.*

* C. M. Kos, M.D. (chairman), otologist in private practice, Iowa City.
Joseph Wolvek (executive secretary), consultant, Hearing Conservation Services, State Department of Public Instruction, Des Moines.
L. E. Berg, superintendent, Iowa School for the Deaf, Council Bluffs.
Dale S. Bingham, consultant, Speech Therapy Services, State Department of Public Instruction, Des Moines.
Paul Chesnut, M.D., private practitioner and member of AAGP, Winterset.
James F. Curtis, Ph.D., head, Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Madelene M. Donnelly, M.D., director, Division of Maternal and Child Health, State Department of Health, Des Moines.
Joseph Giangreco, assistant superintendent, Iowa School for the Deaf, Council Bluffs.
Malcolm Hast, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Byron, Merkel, M.D., otolaryngologist in private practice and member of Academy of Otolaryngology and Ophthalmology, Des Moines.
William Prather, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City.
Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

How tragic it is for the parents of a presumably deaf child to be told, "Your child is deaf and will never learn to speak. Nothing can be done for him." Or, "When he is six, he can go to the State School for the Deaf, but until then, there is nothing that can be done."

Incredible in this day and age? Perhaps, but nevertheless parents are all too often being given such misinformation. Worse, they are being told these things at a time when it is difficult for them to accept the fact that their child does have a hearing problem and when, probably more than at any other time, they need to be given positive assurance of some kind.

Often, parents who have been misled in this manner will then go from clinic to clinic, from specialist to specialist, or even sometimes to a charlatan, seeking a medical "miracle." True, they need to be told that nothing medical can be done to restore the child's hearing, if such is indeed the case; but the assertion that "nothing can be done" is misleading, and in the majority of cases untrue. If the parents had been given positive counseling from the beginning, how much better it would have been for their peace of mind and for their child's future!

There are very few children, even though profoundly deaf, for whom nothing can be done to prepare them for living in a hearing world. The important thing is to detect the loss and to assess the child completely, from the medical, educational, psychological and audiological standpoints, *as early as possible.*

Why is it important to detect a hearing loss early in the child's life? It is quite possible, of course, that such a loss may be reversible from a medical or surgical standpoint. Reversible losses and the means of treating them will be discussed in the coming articles of this series. The present article is concerned with losses which are *not* medically reversible to within normal limits. What can be done for children with these kinds of losses, and why is it important to start early?

First of all, it is well known that most children start to talk before the age of two years. If a child has not developed some language by that age, one can suspect a hearing loss. Early detection of such

a loss is important, so that special training and education can be initiated and carried out to promote speech and language skills. Further, unless special help is given promptly to a child who is handicapped in communication, he may substitute other less desirable means of communication—for example, sign language or gestures—and probably will develop undesirable behavior.

It should not be inferred that all hard-of-hearing children, especially those with profound losses, will be able to "keep up" with normal-hearing children in their development of language and speech skills. It may be that the hard-of-hearing child will never speak in a way that we regard as "normal," but he must be helped to speak as *intelligibly* as possible. The earlier that training is started, the greater the likelihood that communication will develop to an adequate level.

Many children with irreversible hearing losses can benefit from hearing aids. However, it is necessary for the degree and type of the hearing loss to be assessed as accurately as possible, so that the right kind of hearing aid is employed. A subsequent article will be devoted to this particular issue.

Parents should be advised to talk as much as possible to the child, making sure that he is watching them. Advice and help to parents of hard-of-hearing children is available from the State Committee on the Conservation of Hearing. Correspondence should be addressed to the secretary of the Conservation of Hearing Committee, Division of Special Education, State Office Building, Des Moines 19, Iowa.

In some cities, speech and hearing clinics are also available together with nursery schools and preschools for hard-of-hearing children, and qualified teachers of the deaf, or hearing clinicians. These resources should be investigated and utilized, if possible. Inquiries should be sent to the address given above.

A complete hearing assessment is often difficult and time-consuming in the case of a very young child, especially if the child has a hearing loss. Repeated and comprehensive tests are often necessary. In many cases such tests are available from an otolaryngologist. If not, the otolaryngologist will be able to refer the child to an otologist, or to a hearing center where there are audiologists and where a complete assessment is available.

To recapitulate, hearing losses should be detected as early as possible because: (1) They may be medically reversible. (2) If they are not, constructive and positive steps need to be taken to reassure the parents and to assure the maximum development of communication for any given child. Such steps may include a hearing aid, parental instruction, auditory training, speech reading, schools for the deaf, and special classes for the hard of hearing.

The first step is a complete medical examination, which may be followed by audiological, psychological and educational assessments.

Postgraduate Courses in Iowa City

PEDIATRICS—CURRENT PROBLEMS

(Sponsored by the S.U.I. Department of Pediatrics, the Iowa Pediatric Society, and the Division of Maternal and Child Health of the State Department of Health.)

Medical Amphitheater, Room E-331, University Hospitals

Wednesday, September 19

8:45 Registration
9:00 Introductory Remarks
Donal Dunphy, M.D., Professor and Head, Pediatrics, S.U.I.
9:15 Leukemia, Etiology and Therapy
Donald Pinkel, M.D., Medical Director of St. Jude Hospital and Professor of Pediatrics, University of Tennessee, Memphis
10:30 The Child and Chronic Disease
Robert Gauchat, M.D., Associate Professor, Pediatrics, S.U.I., Chm.
Milton Rapoport, M.D., Professor, Pediatrics, Children's Hospital of Philadelphia
Donald Pinkel, M.D.
Ray Rembolt, M.D., Professor, Pediatrics, S.U.I.
Robert Kugel, M.D., Associate Professor, Pediatrics, S.U.I.
11:45 Report on Governor's Commission on Children and Youth
Omar A. Stauch, M.D., Sioux City
12:00 Academy of Pediatrics Meeting
12:30 Lunch—Doctors' Dining Room
2:00 Mental Retardation
a) Genetics—Hans Zellweger, M.D., Professor, Pediatrics, S.U.I.
b) Biochemical Abnormalities—Milton Rapoport, M.D.
c) Diagnostic Studies—Robert Kugel, M.D., and John MacQueen, M.D., Professor, Pediatrics, S.U.I.
d) Management—Robert Kugel, M.D., Chm.
Theron Alexander, Ph.D., Associate Professor, Pediatrics, S.U.I.
John MacQueen, M.D.
Hans Zellweger, M.D.
3:45 Pediatric Potpourri
Cushing's Disease—Charles Read, M.D., Professor, Pediatrics, S.U.I.
Diarrhea and Alkalosis—George M. Owen, M.D., Assistant Professor, Pediatrics, S.U.I.
Hereditary Sensory Neuropathy With Spinal Cord Disease—Hans Zellweger, M.D.
4:45 Question and Answer Period
5:00 Business Meeting, Iowa Pediatric Society
6:30 Social Hour and Dinner—University Athletic Club

Thursday, September 20

9:00 Malignant Tumors in Pediatrics
The Problem—Robert Carter, M.D., Associate Professor, Pediatrics, S.U.I.
Radiation Therapy—Howard Latourette, M.D., Professor, Radiology, S.U.I.
Surgical Therapy—Robert Soper, M.D., Assistant Professor, Surgery, S.U.I.
Chemotherapy—Donald Pinkel, M.D.

10:30 Ulcerative Colitis
Milton Rapoport, M.D.
11:15 Question and Answer Period

PEDIATRIC UROLOGY

(Sponsored by the Department of Urology and the Iowa Urological Society)

Room E-405, University Hospitals

Friday, September 28

8:00 Registration
8:45 Welcome
Robert C. Hardin, M.D., Dean, S.U.I. College of Medicine
9:00 Diagnostic Procedures in Uropediatric Problems
David A. Culp, M.D., Professor, Urology, S.U.I.
9:45 Concepts in Treatment of Cryptorchidism (with movie)
Rubin H. Flocks, M.D.
10:45 Intersexuality
Raymond G. Bunge, M.D., Professor, Urology, S.U.I.
Charles H. Read, M.D., Professor, Pediatrics, S.U.I.
12:00 Discussion
12:30 Lunch—Doctors' Dining Room
1:30 Evaluation of Renal Function in Urinary Tract Infections in Children
Robert Lich, Jr., M.D., Professor and Head of Urology, University of Louisville School of Medicine
2:15 Pyelitis in Children
Philip L. Calcagno, M.D., Professor, Pediatrics, Georgetown Medical School, Washington, D. C.
3:15 Panel Discussion of Pediatric Urological Cases
Robert Lich, Jr., M.D.
Philip L. Calcagno, M.D.
Raymond G. Bunge, M.D.
Donal Dunphy, M.D.
4:30 Business Meeting of the Iowa Urological Society
6:00 Dinner—Iowa Urological Society
Curt Yocom Restaurant

Saturday, September 29

9:00 Renal Tubular Disease
Philip L. Calcagno, M.D.
9:30 Abdominal Masses in Children
Hugh L. Wolff, M.D., Assistant, Urology, S.U.I.
10:15 Pyelogram Clinic
12:00 Lunch
1:30 Football: Iowa vs. Oregon State

ARTHRITIS AND RELATED DISORDERS

(Sponsored by the Division of Physical Medicine and the Department of Orthopedic Surgery at S.U.I. and the Iowa Chapter of the Arthritis and Rheumatism Foundation.)

Room E-331, Medical Amphitheater, University Hospitals

Friday, October 5, 1962

8:30 Registration
9:00 Welcoming Address
Dr. Robert Hardin, Dean of the Medical School
9:15 Surgical Treatment of Tendon Disease
A. E. Flatt, M.D., Associate Professor, Orthopedic Surgery, S.U.I.
9:45 Bacterial Arthritides
Max M. Montgomery, M.D., Associate Professor of Medicine, University of Illinois College of Medicine, Chicago
10:30 Management of Referred Skeletal Pain
Janet Travell, M.D., Personal Physician to President Kennedy, Washington, D. C.
11:30 The Occurrence of Rheumatic Fever in Children With Rheumatoid Arthritis
R. D. Gauchat, M.D., Associate Professor, Pediatrics, S.U.I.
12:00 Discussion of morning papers
12:30 Luncheon—Doctors' Dining Room
1:30 Gout
L. M. Lockie, M.D., Professor of Therapeutics, University of Buffalo School of Medicine, Buffalo, N. Y.
2:30 Care of the Feet in Rheumatoid Arthritis
C. B. Larson, M.D., Professor and Head, Orthopedic Surgery, S.U.I.
3:15 Discussion of papers
6:30 Dinner: Curt Yocom's Restaurant
Speaker: Hon. W. L. Mooty, Lt. Governor of Iowa

Saturday, October 6, 1962

9:00 Early Physical Findings in the Common Form of Arthritis
L. M. Lockie, M.D.
10:00 Reiter's Syndrome
Max M. Montgomery, M.D.
11:00 Plasma Proteins in Rheumatoid Arthritis
J. I. Routh, Ph.D., Professor, Biochemistry, S.U.I.
11:45 Discussion of papers
12:30 Luncheon
1:30 Football—Iowa vs. Southern California

The registration fee for the first conference will be $10.00 for members of the Iowa Pediatric Society and $20.00 for non-members. A $5.00 fee will be charged for registration of members of the Iowa Urological Society for the course in "Pediatric Urology." The fee for non-members will be $20.00. The registration fee for the Arthritis conference is $20.00.

The Iowa Chapter of the AAGP will allow 8 hours of Category I credit for each of these courses.

Luncheon and dinner tickets may be obtained at the registration desk. Housing is available in the University's Iowa Center for Continuation Study, and special parking permits will be issued to registrants, if they are requested in advance. A limited number of tickets for the football games on September 29 and October 6 will be available at $5.00 per ticket and should be ordered early. Pre-registration is urged to assure those attending of the best possible arrangements.

Iowa Chapter of the American Academy of General Practice

Fourteenth Annual Meeting and Scientific Assembly of the Iowa Chapter of the AAGP

The Iowa Chapter of the American Academy of General Practice will hold its Annual Meeting and Scientific Assembly at Hotel Savery in Des Moines on Wednesday and Thursday, September 12 and 13.

The annual business meeting for all members for the transaction of necessary business and the election of officers will be held at 12:15 Wednesday, following luncheon. All the annual reports of the essential committees will again be mimeographed and in the hands of all members upon registration. Thus each member will have an opportunity to study the report in advance and prepare to discuss it intelligently during the meeting.

A very interesting and informative scientific program is scheduled for both days, and there will be 36 technical exhibit booths. Time is allotted each morning and afternoon for visiting the booths, and well-informed representatives will be in attendance at each display to answer any questions.

The buffet dinner has been very successful in each of the past two years, and it will again be held on Wednesday at 7:00 p.m. Dr. James D. Murphy, president of the American Academy of General Practice, will speak in his usual eloquent fashion on "The Academy Looks Ahead," and his address will undoubtedly be of great interest to everyone. There will be dancing following the program.

At the luncheon on Thursday, September 13, Dr. James P. Cooney, vice-president of the American Cancer Society, will be the speaker. Dr. Cooney spoke at the banquet for the medical students held last February in Iowa City, and proved to be very entertaining and informative.

The ladies are cordially invited to attend this luncheon, for we are certain they will find it of value to them despite the technical sounding title of Dr. Cooney's address. There will again be a hospitality room in which the ladies can rest and chat between the events of each day.

Registration will begin at 8:00 a.m. on Wednesday morning. A total of 12 hours of Category I credit is allowed Academy members for attendance at the full session. All physicians are invited to attend this meeting.

Following is the scientific program to be presented:

WEDNESDAY, SEPTEMBER 12

Morning Session

8:00 Registration
8:30 Movie Film—"Cancer Detection: Proctosigmoidoscopy in Office Practice"
9:00 Invocation—Rev. Wilson Hyde, Union Park Methodist Church, Des Moines
Greetings from Polk County Medical Society
Greetings from Iowa Medical Society
9:15 "Diagnostic Aspects of Headache"—E. Douglas Rooke, M.D., Rochester, Minn.
9:45 "The Problem of Stuttering"—Frederic L. Darley, Ph.D., Rochester, Minn.
10:15 VISIT EXHIBITS—Coffee—Courtesy of Blue Cross & Blue Shield
11:00 "New Approach to Hernia Repair"—Lawrence O. Ely, M.D., Des Moines
11:30 "Soft Tissue Injury About the Knee"—James K. Stack, M.D., Chicago, Ill.
12:15 LUNCHEON—ANNUAL BUSINESS MEETING for all members

Afternoon Session

2:15 "Treatment of Vasodilating Headache"—Dr. Rooke
2:45 "Practical Aspects of Fluid Electrolytes"—Dr. Ely
3:15 VISIT EXHIBITS—Coffee—Courtesy of Blue Cross & Blue Shield
3:45 "The Early Management of Aphasia"—Dr. Darley
4:15 "The Lumbar Intervertebral Disc"—Dr. Stack
6:30 SOCIAL HOUR
7:00 BUFFET DINNER—Speaker—James D. Murphy, M.D., Fort Worth, Texas, president, American Academy of General Practice—"The Academy Looks Ahead"
9:00 DANCING—Jack Cole's Orchestra

THURSDAY, SEPTEMBER 13

Morning Session

8:00 Registration
8:30 Movie Film—"Ligation of the Internal Iliac (Hypogastric) Arteries"
9:00 "Treatment of Disseminated Solid Tumors With 5-FU and 5-FUDR"—F. J. Ansfield, M.D., Madison, Wisconsin
9:30 "Depressive Reactions"—Philip F. H. Pugh, M.D., Sioux City, Iowa
10:00 VISIT EXHIBITS—Coffee—Courtesy of Blue Cross & Blue Shield

10:45 "Drugs for the Newborn"—Jesse D. Rising, M.D., Kansas City, Kansas
11:45 "Treatment of Disseminated Solid Tumors With Other Chemotherapeutic Agents Including Hormones"—F. J. Ansfield, M.D.
12:00 LUNCHEON—Speaker—James P. Cooney, M.D., New York, Vice-President, American Cancer Society—"The Roll of Oncogenic Virus in the Etiology of Cancer—A Working Hypothesis"

Afternoon Session

2:00 ERNEST E. SHAW MEMORIAL LECTURE—"Current Therapy in Toxemia of Pregnancy"—William F. Howard, M.D., Iowa City
2:45 "Modern Therapeutic Syndromes"—Dr. Rising
3:15 VISIT EXHIBITS—Coffee—Courtesy of Blue Cross & Blue Shield
3:45 "Marital Disharmony"—Dr. Pugh
4:15 "When Is a Caesarean Section Indicated?"—Dr. Howard

First Easy Test for Penicillin Allergy

The August 17 issue of MEDICAL WORLD NEWS describes a skin test for penicillin allergy that is as simple to perform as the Schick test, and is undergoing extensive testing. Thus far, it has proved accurate and safe, and it gives results within 15 minutes. If it proves altogether safe and efficient, the penicillin test is much more than the first practical means of identifying patients hypersensitive to penicillin; it opens the possibility of similar tests for other drug allergies.

Like many other tests for allergies, it requires only a simple intradermal injection, and the characteristic wheal-and-erythema response serves as the index of sensitivity. But unlike others, the inoculum it employs is a synthetic polymer, *not* a dilute solution of the sensitizing agent.

The polymer, penicilloyl-polylysine, is prepared by reacting a commercially available lysine with penicillenic acid, one of penicillin's many breakdown products. This synthetic derivative is the key to the test, according to its developers, a team of physicians at Washington University School of Medicine, St. Louis. "The advantage of the polymer," says Dr. Charles W. Parker, "is that it elicits allergic skin responses in persons with penicillin sensitivities, but it does not stimulate the development of hypersensitivity—a possible danger of diagnostic testing." In fact, this is why the penicilloyl protein conjugate is not used, by itself, as a testing substance. It would pick out the penicillin hypersensitive patient all right, but it could also set off antibody production, creating hypersensitivity where none had existed.

Penicillenic acid is used in preparing the polymer, for a very good reason. It alone seems responsible for the allergic response seen in these patients. That it is the sensitizing agent has been shown independently by Dr. Bernard B. Levine, of the New York University Medical Center, and by the St. Louis group. The intact penicillin molecule, they point out, lacks the one prerequisite of a sensitizer—it cannot combine with protein.

"Actually," Dr. Parker says, "what is true of penicillin sensitivities is true of most drug allergies. The drug itself is not an antigen, but one of its breakdown products, or a contaminant in the preparation, is. Thus, if the sensitizing agent in other drugs can be identified, preparing other diagnostic polymers should be a relatively simple matter. The difficulty lies in identifying the true sensitizing agent."

All allergic reactions are triggered by the formation of large multi-molecular complexes made up of antigen-antibody. The time at which the reaction occurs, however, depends on the antigen and antibody supplies on hand. If sufficient antibody is present, the inflammatory response is immediate; or it may occur a week to 10 days after injection of the drug, as the antibody level builds up. But a patient may be sensitized by several drug injections, then suddenly undergo a violent reaction with the next exposure, when the antigen-antibody aggregate hits the critical level.

What the synthetic polymer does, in effect, is to short-change this chain of events. It does not stimulate additional antibody formation, but it does pick up, and tie up, the existing antibodies. Thus, the size of the wheal-and-erythema reaction actually is a measure of the patient's antibody level.

Therapeutic control of drug sensitivities, the St. Louis team points out, may be accomplished by competitively blocking the antibodies present, thus stalemating the growth of the antigen-antibody complex. "In theory, at least, if free peniciloic acid, which is a unifunctional hapten, were administered to a penicillin-sensitive individual, it would act as a competitive inhibitor of reactive antibody sites. The antigens present in the next dose of the drug would find nothing to combine with, and thus the patient could probably be protected—at least during an emergency."

Iowa Commission on Children and Youth

The Iowa Commission on Children and Youth will hold its fall conference "Focus on Youth" in the Memorial Union on the campus of Iowa State University, in Ames, on Friday, September 28.

This meeting will be a follow-up of the White House Conference on Children and Youth, held some time ago. It will deal with problems of health, youth employment, the organizing of community councils, family life education, and the broad field of education. The workshops will be geared for both adult and youth participation.

The registration fee for adults will be $1, but there will be none for youths. Registration will begin at 8:30, and the first session will start at 9:00 a.m. Advance registrations may be sent to Mrs. Elizabeth Palmer, director, Children's Division, Board of Control of State Institutions, State Office Building, Des Moines 19.

THE DOCTOR'S BUSINESS

New Depreciation Regulations

HOWARD D. BAKER
Waterloo

The Internal Revenue Service, on July 11, 1962, issued its long-awaited new depreciation regulations. While they will require exhaustive study and be subject to interpretation, it is generally felt that a large segment of business and industry will benefit tax-wise from these new regulations.

To you, as physicians, they do not, however, have a great deal of tangible tax-saving to offer. Manufacturing, with its heavy capital outlays, obsolescence and frequent replacement, will benefit most. Professions and services, where capital investment is relatively small, gain little if any benefit.

As an example, medical and dental equipment under the old "Bulletin F" had a suggested life of 10 years. The new "Revenue Procedure 62-21," prescribes the same 10 years. Old Bulletin F prescribed 33⅓ to 50 years for medical office buildings, with 40 as "average." Most of us have used 40 years, *but* the new regulations prescribe 45 years. Old Bulletin F prescribed 10 years for office furniture and machines; the new regulations still provide 10 years. Old Bulletin F prescribed 3 to 5 years on business automobiles, and the new regulations prescribe 3 years.

In addition to establishing "Guideline Classes" as a tool in establishing the depreciation life of an asset, the new regulation provides a "Reserve Ratio Test" which simply establishes a relationship between total depreciation taken and the original cost of a class of assets. The regulation establishes upper and lower limits of tolerance, and will not adjust depreciation rates within these limits. When depreciation taken exceeds the upper limit of this reserve ratio during the first 3 years from July 11, 1962, the taxpayer will be granted a period equal to the guideline life to bring his reserve ratio within the upper limits for that class of property.

Although the text of these regulations is complex and laborious, the general impression is that the individual revenue agent is going to have far less arbitrary discretion in adjusting depreciation deductions. It would appear that there now will exist an explicit formula for determining excess depreciation and liberal established procedures for the gradual correction of such excesses. Only future experience with the Revenue Service will disclose what its philosophy will be. It could logically mean an end to depreciation adjustments except where there is flagrant and unquestionable over-depreciation of assets.

It should be borne in mind also that these new regulations do not alter the provisions for accelerated depreciation methods such as the declining balance and sum of the year's digits technics. Neither is the 20 per cent first year allowance to tangible personal property affected. These regulations govern only the useful lives of depreciable assets, with separate reserve ratio tables provided for the different methods of depreciation.

LEGISLATIVE DEVELOPMENTS

Medicare—The bitter defeat suffered by President Kennedy on this measure probably assures that it will be a hot campaign issue this fall. However, it is a dead issue for at least a year and possibly for many years. The House of Representatives was not even confronted with the bill, and opposition there is expected to be greater than in the Senate.

Tax Bill—This is another of President Kennedy's numerous legislative defeats. The dividend-withholding provision which met violent grass-roots opposition is out. The tax increase on foreign income of U. S. corporations has been greatly watered-down, and the investment tax credit provision has been modified appreciably.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

Iowa Association of Medical Assistants

Annual AAMA Meeting

The annual meeting of the American Association of Medical Assistants will be held at the Statler-Hilton Hotel, in Detroit, Michigan, September 26-30.

For the first time, the House of Delegates will convene one day prior to the opening of the meeting.

One session of the educational program will be devoted to the newest ideas in health care, following the general theme of the convention "Highways to Health."

Members from throughout the United States have been chosen to conduct a workshop designed to give assistance in all phases of organizational work. New officers and committee personnel will find this session particularly interesting. Joan Barlow, R.N., of Squibb, will participate in this section of the program.

A panel of business consultants will discuss business practices and shortcuts for the medical office assistant.

Friday noon, the State Luncheon will be held. Presidents of 33 states now organized, and of those states that have fulfilled all requirements for AAMA chartering, will be honored at that time and charters will be given to several new states.

The Saturday afternoon session will be the Wyeth Symposium, which this year will be devoted to the AAMA Certification Program. Moderator will be Mrs. Mary Kinn, past president of AAMA and chairman of the Certification Program. The title of this portion of the program will be "Bridging the Gap." Taking part in the program will be Dr. Carl Clark, AAMA advisor; Mr. George Wagoner, of the University of Tennessee; the executive secretary of the American Dental Assistants' Certifying Board; and a national secretary. They will supply such information as what certification is, how we get it, what its value is, how we prepare for it, and how it has worked for other groups similar to ours. This promises to be a session of great interest and value. The AAMA BULLETIN has published lists of textbooks suggested for study by those interested in preparing for pilot tests. The first of these tests will be given to a group of volunteers at the Detroit meeting. No grades will be given, but from the evaluation of these tests it will be possible to set up the final tests, and the project will be ready to go into effect in 1963.

Dr. George M. Fister, of Ogden, Utah, newly installed president of AMA, will be the Saturday night banquet speaker. Miss Alice Budney, of Milwaukee, Wisconsin, will take office as president of AAMA, and newly elected officers will also be installed Saturday evening.

In addition to the educational program and House of Delegates meetings, several interesting tours have been planned, and there will be several social events in addition to the scheduled luncheons and banquet.

The climate in the Detroit area is very similar to that of south-central Iowa. This should be a good time to plan a fall vacation, and be sure to include the AAMA meeting in those plans.

—HELEN G. HUGHES

Valuable Leaflet on Socialized Medicine

Iowa's junior U. S. Senator, Hon. Jack Miller, of Sioux City, planned in mid-July to mail to each doctor in the state a copy of his remarks in the Senate, on July 11, 1962, regarding the then-pending King-Anderson Bill and similar schemes for attaching health care of the aged to Social Security. The editors of the JOURNAL were told about it, by the AMA Washington office, just too late to make an announcement regarding it in the August issue, and it may be that the mailing has already arrived in physicians' offices throughout the state.

This pamphlet contains a particularly fine explanation of the dangers inherent in all such proposals, and it should be placed on waiting-room tables for patients to read.

Besides Senator Miller's remarks, this reprint from the CONGRESSIONAL RECORD includes full-length reproductions of an article from U. S. NEWS AND WORLD REPORT (issue for July 2, 1962) pointing out that overburdening the Social Security System at this time may result in its being scrapped by later generations of Americans, and of an address by Dr. John R. Seale, a member of the medical profession in Great Britain, to the House of Delegates of the California Medical Association, on April 24, 1962, pointing out the defects as well as some of the benefits of the British National Health Service.

If you haven't received, or are unable to find, your copy of this reprint from the CONGRESSIONAL RECORD, please request one from Senator Miller. His address is: New Senate Office Building, Washington 25, D. C.

STATE DEPARTMENT OF HEALTH

COMMISSIONER

Influenza Immunizations 1962-1963

A recent bulletin from the USPHS Surgeon General's office, released following the April 19 meeting of the Surgeon General's Advisory Committee on Influenza, summarizes the principal conclusions and recommendations of the Committee:

1. Recent and past patterns of influenza A and B indicate that widespread outbreaks of influenza A_2 (Asian) will occur in the United States during the 1962-63 winter season. Outbreaks of influenza B are likely to be infrequent.

2. Long experience with influenza strongly emphasizes that certain groups of the population (see item No. 3 below) are at greatest risk of death or severe morbidity should they acquire the disease. Since polyvalent influenza virus vaccine has been repeatedly shown to be of definite value in preventing influenza, annual immunization of these groups is again stressed.

3. Patients in the following disease categories have experienced the highest mortality rates, and therefore, specific protection is clearly indicated for them as a routine practice.

A. Persons of all ages who suffer from chronic debilitating diseases, e.g., chronic cardiovascular, pulmonary, renal or metabolic disorders; in particular:

1. Patients with rheumatic heart disease, especially those with mitral stenosis.

2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.

3. Patients with chronic bronchopulmonary diseases, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, pulmonary tuberculosis.

4. Patients with diabetes mellitus and Addison's disease.

B. Pregnant women.

C. Persons in older age groups—those over 45 and particularly those over 65 years of age.

4. Since there is a reasonable probability that epidemics of influenza A_2 (Asian) will occur during the coming respiratory disease season, serious consideration should also be given to immunizing those in medical and health services, public safety, public utilities, transportation, education and communications fields. In industries and large institutions where absenteeism is of particular concern, large-scale immunization programs are to be encouraged.

5. Immunization should begin as soon as practicable after September 1, and should be completed by mid-December. Since a two-week delay in the development of antibodies may be expected, it is important that immunization be carried out before epidemics occur in the immediate areas.

In addition, the Committee concluded there was no reason to make any changes in the influenza vaccines used last year. These vaccines will continue to have the antigenic composition prescribed for the 1961-62 season:

Type	Strain	CCA Units Per cc
A	PR8	100
A_1	Ann Arbor 1/57	100
A_2	Japan 305/57	200
B	Great Lakes 1739/54	100

The dosage schedule is to remain as follows:

1. Persons who had no immunizations against influenza last year:

A. Adults, 13 years of age or older. 1 cc subcutaneously, to be followed by a second injection of 1 cc from two weeks to two months after the first injection.

B. Children, 6 to 12 years of age. 0.5 cc dosage administered at the same time intervals as given above.

C. Children, below the age of 6. An initial dose of 0.1 to 0.2 cc should be given. Since the dosage suggested is smaller because of the possibility of febrile reactions occurring in many small children, it is well to reduce the interval between the two injections to one or two weeks. Acetylsalicylic acid (one grain per year of age) may be given every six hours for the first 24 hours, provided its use is not known to be contraindicated.

2. Persons immunized last year with influenza vaccine:

These persons need have only the one injection

of the dosage listed above. The booster injection suggested two to three months later for the small children should be observed.

Groups planning large influenza immunization programs should place their orders with the producing companies as far in advance as possible. It is necessary that the producers be informed of the anticipated use of their product in order that they can plan in advance to meet the demands for it.

PERSONS ALLERGIC TO CHICKEN, TO EGGS OR TO EGG VACCINES SHOULD NOT BE GIVEN INFLUENZA VACCINE.

Referrals of Leukemia Patients Requested

The cooperation of physicians is requested in a study of chronic myelogenous leukemia being conducted by the Chemotherapy Service of the National Cancer Institute of the National Institutes of Health, Bethesda, Maryland.

Patients in the 20-40 year age group with high white blood cell counts and platelet counts are especially needed for studies of newer chemotherapeutic agents and as a source of white cells and platelets for *in vitro* and *in vivo* studies.

SCHOOL TUBERCULIN TESTING PROGRAMS—IOWA—JULY 1960-JUNE 1961

County	Type of Testing	Schools		Students		Personnel		Contacts	
		Tested	Certified	Tested	Reactors	Tested	Reactors	Tested	Reactors
Allamakee	Mantoux	43	32	4,245	0.9	297	14.5	100	16.0
Appanoose	Mantoux	26	15	3,010	6.2	182	24.7	122	15.6
Floyd	Mantoux	1	–	570	7.4	11	18.2	31	16.1
Franklin	Patch	8	5	2,917	1.4	220	15.9	41	12.2
Howard	Mantoux	38	37	4,097	1.1	316	23.1	95	26.3
Monroe	Mantoux	13	13	2,213	2.8	143	24.5	68	35.3
Plymouth	Mantoux	1	1	566	1.6	30	16.7	Sel. Grade Prog.	
Pottawattamie	Mantoux	2	1	1,044	1.6	72	23.6	Local	*
Poweshiek	Mantoux	14	11	4,157	3.9	310	18.1	443	14.7
Story	Mantoux	38	14	9,095	1.5	552	19.6	74	13.5
Van Buren	Mantoux	19	11	2,183	2.7	213	23.0	239	28.0
Warren	Mantoux	(6)	–	2,061	2.2	100	23.0	6, others x-rayed	50.0
Winneshiek	Mantoux	14	14	3,964	2.2	323	21.1	112	12.5
TOTAL		223	154	40,122	2.3	2,769	20.2	1,331	19.0

* Unknown

The accompanying summary of tuberculin testing in the Iowa schools for the year ending June 30, 1961, has recently been completed by the Iowa Tuberculosis and Health Association. It is to be noted first that the Mantoux type of testing is replacing the patch type. Although the patch test is more easily applied, the inaccuracies associated with it are leading to its abandonment. The tests included youngsters in all grades, from kindergarten through twelfth, and of 40,000 persons tested, 2.3 per cent were found to be reactors. A grade-by-grade breakdown would show less than ½ per cent reactors among kindergarten children and a gradual increase up to 3 to 5 per cent among high school seniors. Following the per cent of increase with increase in age, the per cent of reactors among the adult school personnel was about 20.

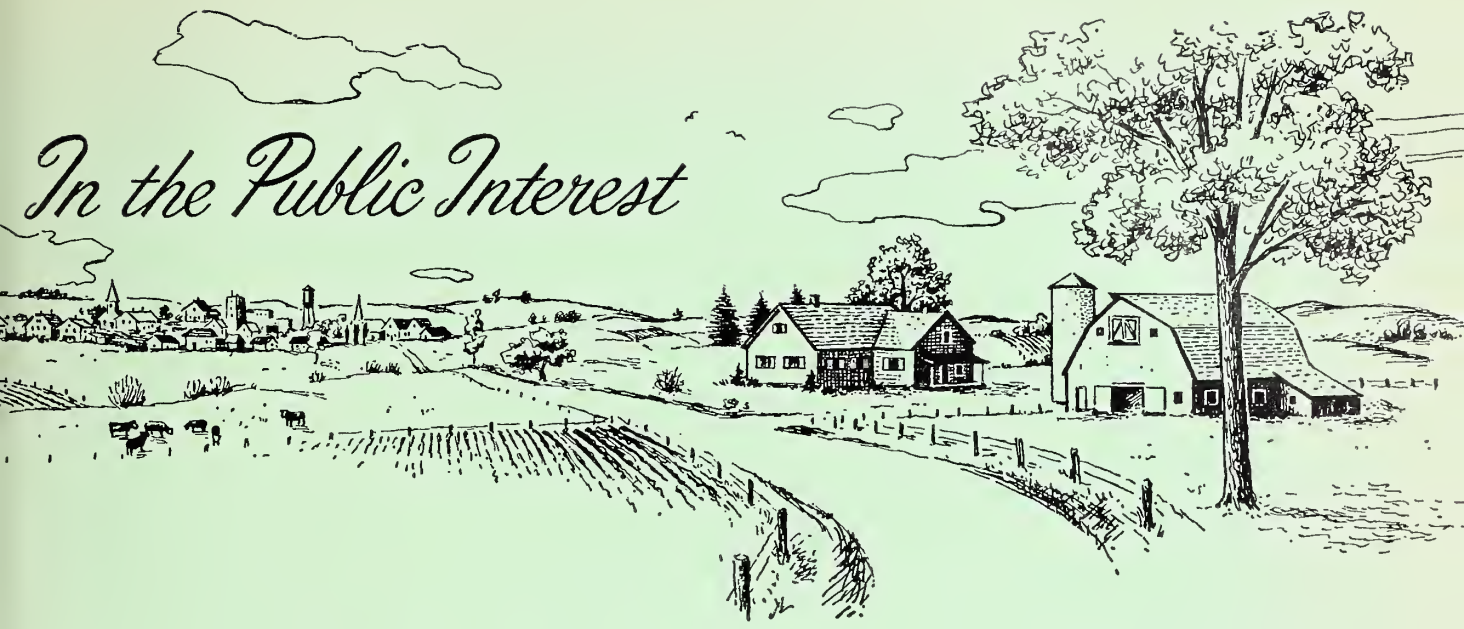
The last pair of columns, the "Contacts," represent family or other close associates of school pupils or school personnel. The school tuberculin testing program is not complete unless family members and other close contacts of all reactors, either pupils or adult personnel, are tuberculin tested and x-rayed as a final part of the school program.

Morbidity Report for Month Of July, 1962

Diseases	1962 July	1962 June	1961 July	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	88	170	104	Hancock, Johnson, Kossuth
Typhoid fever	0	1	0	
Smallpox	0	0	0	
Measles	125	1,002	236	Audubon, Boone, Des Moines, Scott
Whooping cough	6	5	7	Clay, Clinton, Dubuque, Polk
Brucellosis	8	13	29	Cass, Clay, Iowa, Johnson, Muscatine, Scott, Story, Wapello
Chickenpox	48	100	47	Des Moines, Scott
Meningococcic meningitis	1	0	1	Hardin
Mumps	64	231	127	Clay, Scott
Poliomyelitis	0	0	1	
Infectious hepatitis	56	63	159	Black Hawk, Clinton, Des Moines, Lucas, Scott, Wayne
Rabies in animals	27	32	53	Johnson, Keokuk, Muscatine, Sac
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	23	26	35	For the state
Syphilis	68	101	74	For the state
Gonorrhea	106	141	111	For the state
Histoplasmosis	1	3	7	Dubuque
Food intoxication	0	48	0	
Meningitis (type unspecified)	0	0	1	
Diphtheria carrier	0	0	0	
Aseptic meningitis	0	1	0	
Salmonellosis	6	6	2	Benton
Tetanus	0	1	1	
Chancroid	1	0	0	Polk
Encephalitis (type unspecified)	0	1	1	
H. influenzal meningitis	1	0	0	Polk
Amebiasis	7	2	2	Boone
Shigellosis	0	3	3	
Influenza	0	0	0	

The State Board of Health

Pictured here are the physician members of the State Board of Health. Seated, left to right: Dr. Edmund G. Zimmerer, Des Moines, Commissioner of Public Health; Dr. Franklin H. Top, S.U.I., President of the Board; Dr. Sidney L. Sands, Des Moines, Secretary. Standing, left to right: Dr. J. D. Caulfield, New Hampton; Dr. Donald C. Conzett, Dubuque, Vice-President; Dr. Paul D. Pedersen, Council Bluffs. The Governor, Secretary of State, State Treasurer, State Auditor and the Secretary of Agriculture are also members of the Board, ex-officio.



Continuing Cooperation Seems Assured Between The S.U.I. College of Medicine and The Iowa Medical Society

The Board of Regents and S.U.I. President Virgil Hancher are to be complimented for choosing Robert C. Hardin, M.D., as the new dean of the College of Medicine at Iowa City. Physicians throughout the state are confident that they can work just as closely and harmoniously with him as they did with his predecessor, Norman B. Nelson, M.D., in maintaining and improving medical care in Iowa.

The members of the Iowa Medical Society can take particular satisfaction in Dr. Hardin's appointment because, in recent years, he has worked through organized medicine in making substantial contributions to public health. As chairman of the IMS Committee on National Emergency Medical Service and as one of the Society's representatives in the Iowa Interprofessional Association, he took the lead in organizing county disaster medical care committees—groups that will mobilize medical and paramedical personnel in each community whenever large numbers of people have been injured in a natural or man-made catastrophe. Besides, he has helped keep his fellow physicians abreast of the rapid improvements in the area of his greatest interest, diabetic therapy.

DR. SCANLON'S STATEMENTS REGARDING MEDICAL EDUCATION IN IOWA

Since Dr. Hardin is almost a life-long Iowan and has a close acquaintanceship with the medical-care problems of the state, IMS members feel sure he subscribes to the following principles which George H. Scanlon, M.D., their president, stated in a letter to Mr. Harry H. Hagemann, of Waverly, president of the Board of Regents, on July 14, 1962, when candidates for the deanship were being considered:

1. The S.U.I. College of Medicine, as a state tax-supported institution, is responsible for providing medical training to students so that they, in turn, may provide maximum benefits to the largest possible numbers of citizens of the State of Iowa.

2. The private practice of medicine should be preserved and advanced, and medical students should be urged to plan on establishing practices in Iowa.

3. In recognition of the need for more physicians in Iowa's rural communities, students should be especially encouraged to enter general practice, rather than to take specialty training immediately. In this connection, the faculty should promote the art of medicine, as well as the science of it.

DEEMPHASIZING SPECIALIZATION WILL TAKE CONSIDERABLE EFFORT

Medical knowledge has become so voluminous that no one man or woman can hope to master the whole of it. Thus, the physicians who care for the most difficult cases of any type must be specialists. But every community, large or small, continues to need general practitioners to care for patients with the more usual sorts of illnesses, and the vast majority of Iowa communities are too small to support specialists. For those reasons, the medical faculty at S.U.I., under the leadership of its dean, should do its utmost to persuade more students to plan on entering general practice, to intern in Iowa hospitals, and to locate in Iowa.

Teachers of medicine and surgery may feel a certain amount of reluctance about participating in this endeavor, first because each of them is flattered when some of his students choose his field as the most attractive of all of the branches of medicine, and second, because one of the measures of a teacher's stature is the number of students who have sought training in his specialty after completing their internships. An acceptable compromise would be for teachers to urge their students to plan on spending four or five years in general practice before undertaking specialty training. With the perspective that such experience had provided them, they could then become extraordinarily competent specialists.

There is another difficulty to be surmounted. At the College of Medicine and University Hospitals, in Iowa City, students may get the impression that no one is justified in undertaking any procedure in medicine or surgery until he has acquired the exhaustive knowledge that the various ones of their teachers possess. That idea is due, in large measure, to the fact that the cases posing the greatest difficulties either in diagnosis or in treatment are the ones that are referred from throughout the state to Iowa City. Somehow or other, students should be introduced to the actualities of general practice quite early in their medical studies, so that they won't regard such a career as impossibly difficult for a young M.D. fresh from his internship.

THE ART OF MEDICINE DESERVES INCREASED STRESS

When Dr. Scanlon expressed the hope that the *art* of medicine might be given as much emphasis as is accorded to the *science* of it, he doubtless had two ideas in mind. First, he was voicing the wish that the faculty might be encouraged to inculcate in students a profound and unvarying respect for patients—thus promoting the attitude for which the "horse and buggy doctor" is revered. It may be that the doctors of our grandparents' day had more time to spend at their patients' bedsides, or it is possible that since specific remedies for their patients' illnesses hadn't yet been developed, sympathy was almost all they had to give them. Yet, however that may have been, healing remains to a considerable extent an art in which the physician succeeds almost as much by evoking the confidence of his patients as by giving them tablets and injections. The habit of mind which is essential to that art can be taught by example far better than by precept, but it can be taught and it deserves teaching.

The other of Dr. Scanlon's ideas, it seems certain, was that research—though surely one of the proper functions of a medical school—ought not to be permitted a disproportionate place in the academic program. At present, because the National Institutes of Health, the pharmaceutical manufacturers and various voluntary health organizations have ample funds to donate for studies in which they are especially interested, there is a very real possibility that both teachers and students may spend too much time in the laboratory and too little on the wards.

THE IMS IS ANXIOUS TO HELP

The Iowa Medical Society of course will continue its projects designed to assist medical education and to get more young doctors to locate within the state. It solicits contributions from its members to the American Medical Association's Education and Research Fund, which helps each year to meet the general operating expenses of medical schools. It operates the IMS Educational Fund, which lends living-expense money to junior and senior medical students who are in danger of having to quit school, and it is trying to interest other organizations in helping with that work, so that freshmen and sophomores in medicine may be rescued from like difficulties. And it conducts a placement service to help Iowa communities find doctors.

For a number of years, 100 or more physicians—most of them GP's—have invited a junior student each to spend a month viewing the private practice of medicine at close range, and recently the completion of such a preceptorship has been made one of the requirements for graduation at Iowa City. The preceptorship program certainly should be continued, for it has benefitted both preceptors and preceptees, but the Society will welcome suggestions for its improvement.

Annually, in May, the IMS sends practicing physicians and the president of its Woman's Auxiliary to Iowa City on "Senior Day" to address the students who are about to graduate, and their wives, in an attempt to give them as much information about the challenges and the satisfactions of private practice as can be conveyed during a single afternoon and evening. It might be a good idea for physicians in private practice to visit the medical school more frequently for this purpose, and for them to talk more or less informally with underclassmen, as well as with seniors, on some of these topics with which the students might otherwise remain unfamiliar.

Finally, the members of the Iowa Medical Society hope that Dean Hardin and his faculty will continue expanding the admirable program of short courses by which S.U.I. professors and guest lecturers from other institutions help private practitioners keep abreast of advances in medicine and surgery. The IMS officers have hoped, for quite a number of years, that in addition they might help the College of Medicine present a regular schedule of scientific meetings at various towns throughout the state, so that a maximum number of physicians might benefit from postgraduate instruction.

In all of these ways, the IMS is eager to cooperate with the new dean and his faculty.

Woman's Auxiliary News

Tenth Annual National Conference on Disaster Medical Care

Your president-elect, Mrs. George McMillan, of Fort Madison, and I went to Chicago a day before the National Convention of the Woman's Auxiliary to the American Medical Association so that Iowa might be represented at the National Conference on Disaster Medical Care held in the Palmer House on June 24. Because our train was late, we missed the welcoming address by Dr. Fister, the president-elect of the AMA.

This conference certainly proved to be very worthwhile. Although some of the material was very technical and was meant, I'm sure, for bacteriologists, one paper in particular titled "Immunization as Related to Disaster Preparedness—Building the Circulating Stockpile" deserves mention here. The speaker, David J. Sencer, M.D., is assistant chief of the Communicable Disease Center, United States Public Health Service, Atlanta, Georgia. Dr. Sencer said, "Stockpiles usually bring to mind warehouses strategically located around the country, in which essential elements of survival are neatly organized on shelves. These stockpiles contain drugs, toxoids, vaccines and antitoxins, all with expiration dates. The stockpile envisioned as a circulating one is not a method of replacing outdated materials on warehouse shelves. Rather, it is a stockpile of essential health protection stored in the bloodstreams of the 180 million people in the United States—circulating antibodies against disease. These antibodies could protect the population against tetanus, diphtheria, influenza—diseases which would be of major concern in time of national emergency." He then discussed the wide variety of immunizing agents routinely used in this country.

In a disaster, many conditions will favor the transmission of communicable disease. Trauma, crowding, and disrupted sanitation will intensify the health problems of the population. Dr. Sencer stressed the great benefits that could accrue from community programs of complete immunization. Such an undertaking would be inexpensive, would have the support of physicians and would be a program in which all could participate.

—Mrs. A. C. Richmond
President

Award-Winning 1961 Safety Programs

Three medical society Auxiliaries took top honors recently from the National Safety Council for their outstanding contributions to home and public safety during 1961. Award presentations were a highlight of the 1962 convention of the Woman's Auxiliary to the AMA in Chicago last June.

Chosen from among 75 entries to receive an award of honor from the Council's women's conference citation award program was the Woman's Auxiliary to the Maricopa County (Ariz.) Medical Society, which demonstrated its devotion to high standards of community safety by spearheading three public information programs in home poison control, water safety and emergency child care instruction. Women's Auxiliaries of the Arizona State Medical Society and King County (Wash.) Medical Society received awards of merit for their poison control and GEMS (Good Emergency Mother Substitute) programs respectively.

In developing a water safety program that would meet the needs of Maricopa County, the medical Auxiliary first made a careful study of the rising number of deaths due to swimming and boating accidents, incurred all too frequently in private swimming pools and the many man-made lakes in and around the Phoenix area. A wide-ranging water safety program that would attack the problem on several fronts was obviously needed. As a result the Auxiliary incorporated these features into its safety program:

- A resuscitator was donated to the county sheriff's water safety posse for use at lake-side first aid stations.

- An Auxiliary exhibit at the state fair featured a demonstration of how a resuscitator is used and how to avoid swimming and boating accidents. Thousands of pamphlets on water safety and mouth-to-mouth resuscitation were also distributed.

- Following a special Red Cross training course in water safety, Auxiliary volunteers visited homes throughout the county with swimming pools to instruct housewives in water safety techniques and emergency resuscitation.

- A cartoon-styled poster designed by Auxiliary and Red Cross members listing basic water safety rules was distributed to more than 850 semi-public

pools within the county which were without full-time lifeguards.

LARGEST GEMS PROJECT

Another safety problem of growing concern to the community was the large number of accidents to babies and pre-school children occurring while they were under the care of teenage baby sitters. Confident that many of these accidents could be avoided with proper training of baby sitters, the Auxiliary embarked on another phase of its extensive community service operations—the organization of a GEMS (Good Emergency Mother Substitute) program, which turned out to be one of the largest programs of its kind ever conducted by a medical Auxiliary.

More than 425 teenagers and adults interested in improving their skills as baby sitters completed the Auxiliary's five week, 15-hour course of instruction in child care and safety techniques recently. The course was organized and taught by Auxiliary members, with the cooperation and assistance of other health and safety groups in the community. Areas of study included child care, safety procedures in the home, pediatric first aid, ethics and responsibilities of the baby sitter, and telephone manners which she should cultivate.

Not content to rest on past laurels, the Maricopa Auxiliary is already contemplating future expansion of its program. Because of tremendous community response, it is hoping to develop a year-round GEMS training program using Auxiliary members as teachers in various sections of the county. Other ambitious plans for the future call for the organization of a community council to set up basic working standards for baby sitters, and to work toward the establishment of a permanent baby sitters' school in Maricopa County; and the development of a speaker's bureau to present basic objectives of the GEMS program to interested civic and women's organizations.

ARIZONA POISON CONTROL

A series of accidental poisonings throughout the state prompted the Arizona Medical Association's Woman's Auxiliary to conduct its award-winning poison prevention program. Urged by police and city officials and the Arizona Poison Control Committee to undertake a thorough-going public information program in this area, Auxiliary members developed an informative lecture and slide presentation on poison control, titled "Poisons in Your Home."

Relying on visual aids to impress diversified audiences, the Auxiliary prepared slides emphasizing the toxic potential of certain household products and local desert plants, with which the laymen is often unfamiliar. Included in the presentation were safety suggestions in regard to poisonous and medicinal substances, first aid instruction in cases of accidental poisonings, the procedure for obtaining immediate medical assistance, and the function and location of statewide poison control centers.

With one Auxiliary member narrating the program, another projecting slides and a doctor on hand to answer questions from the audience, the Auxiliary program was enthusiastically received by educational and service groups throughout the state. Even a rod and rifle club asked to be included in the Auxiliary's busy schedule of bookings. The Arizona program is a continuing one and has become a model for local Auxiliary programs in the poison control area.

Annual Convention of Woman's Auxiliary to the AMA: Legislation

Legislative activities at the AMA Auxiliary Convention opened on Sunday, June 24, with AMPAC Day. The morning session, consisting of a political education and action seminar, emphasized the necessity for active political participation by physicians and their families if the free enterprise system of medical care is to be continued. The speakers on the seminar included Stephan A. Mitchell, a Chicago lawyer and author of the book ELM STREET POLITICS, and Senator Thruston B. Morton (R.), junior senator from Kentucky.

AMPAC, American Medical Political Action Committee, was organized to help physicians, their wives and their immediate family members to understand political issues and to be an effective political action group. Activities of AMPAC will include political education which deals with voter registration, effective precinct activity, and the citizen's role in government and politics, as well as political action in which direct support is given financially or through the expenditure of time and effort in the selection of candidates. AMPAC is non-party; those whom AMPAC supports will be determined by the programs and platforms that the individual candidates announce. The organization's functions are completely independent of all medical societies.

Speakers at the fund-raising banquet which concluded AMPAC Day were Senator John Tower, (R.), of Texas, and Rep. Harold B. McSween, (D.), of Alexandria, La. The need for closer ties between medical and non-medical individuals and organizations engaged in good government programs was stressed, along with the importance of understanding legislative problems in relation to legislative proposals, particularly medical. Both speakers cited the need for sustained political activity by the medical profession, and pointed out the dangers which would result if we were to become lax and rest on our laurels when the King-Anderson Bill is defeated.

On Tuesday, June 26, the Legislative Committee

of the Woman's Auxiliary to the AMA presented a series of skits designed to show the facts and defects of the King-Anderson proposal. These included the lack of free choice of drugs, the necessity for the patient to be hospitalized before being admitted to a nursing home, the cost to the patient for the first nine days of hospitalization, the noneligibility of persons who are not Social Security recipients, the trials of the British citizen in receiving care under the socialized medicine system, and the high cost to the taxpayer. It was my pleasure to appear in the beauty-shop skit which told of the plight of persons who are not eligible for Social Security.

The Honorable Everett M. Dirksen (R.), senator from Illinois and minority leader of the Senate, was scheduled to speak to the Auxiliary on Wednesday morning. However, due to pending legislation in Washington he was unable to appear and Dr. Edward Annis spoke in his place. Dr. Annis congratulated the Auxiliary on their activities in the legislative area and their effectiveness in combating the King-Anderson proposal. He spoke of the need for all persons to meet their civic responsibilities if we are to enjoy the benefits of democracy. He cited the unlimited opportunities that can be achieved when a great nation recognizes its rights. Given the facts, Dr. Annis said, the people of America are capable of making sound social judgments.

A WHAM booth was set up at McCormick Place and was maintained each day by area and state legislative chairmen. Located in the exhibit area, the booth provided a wide selection of literature available for use in combating socialized medicine. Persons stopping at the booth were encouraged to write an "on-the-spot" letter to one of their Washington representatives.

The Woman's Auxiliary to the AMA urges each state and county Auxiliary to provide a strong legislative program. Every physician's wife has an obligation to participate in the cause of good government, and only if she fulfills this obligation can the free practice of medicine and individual rights in all areas be maintained.

—JANET ELLIS

Legislative Conference

On May 2, 1962, Mrs. Dean King, of Spencer, Regional Legislative Chairman of the National Woman's Auxiliary, was one of the guest speakers at a dinner attended by some 80 interested ladies of the Rock Valley community. Her remarks on the subject of the pitfalls of the King-Anderson Bill were well received, and she answered many questions in a clear and convincing fashion. Barbara Avery, of Spencer, gave an interpretive report on the Common Market as it has progressed thus far, and on its possible effect on the economics of our country. Elizabeth Trie, of Sibley, well known for her leadership in good sound government policies, concluded the program with timely warnings regarding present socialistic trends.

Officers in charge of the public meeting were Mrs. Lester Hegg, of Rock Valley, and Mrs. Keith Swanson, of Hull, both members of the Iowa Medical Auxiliary, who at this meeting were serving in their capacities as chairman and secretary of the sponsoring organization, the Sioux County Republican Council. The dinner was held in the new Haas Hall of the Public School and was served by the Martha Circle.

Medicine's Counterpart—The Woman's Auxiliary*

MRS. A. C. RICHMOND

The objectives and purposes of the Woman's Auxiliary to the Iowa Medical Society are to foster cooperation between doctors and their families and the communities in which they live, to disseminate materials provided by the Iowa Medical Society, and to engage in such other projects as the Iowa Medical Society authorizes the Auxiliary to undertake.

To facilitate Auxiliary activities, the work is divided into sections, and parts are assigned to various committees. Among those committees are the following.

Legislation. It is the duty of this committee to alert all Auxiliary members regarding any legislative proposals that threaten the free practice of medicine in any way, and to promote all legislation that will help in the advancement of medicine.

Health Careers. This committee helps recruit young people for all of the fields allied with medicine. Its work includes, of course, the recruitment of nursing students, and I should like to mention here that the Auxiliary has a loan fund to aid deserving and qualified young ladies who are looking forward to careers in nursing but need financial assistance.

Mental Health. This committee is rapidly coming to the fore. The Auxiliary has been asked to cooperate with farm organizations, the Extension Service at Ames, the rural health councils and all related groups in solving health problems that affect all of us in Iowa.

Community Service. This committee has charge of various Auxiliary programs. For example, through the Community Service Committee the Auxiliary sponsors an annual essay contest for high school students on subjects such as the merits of the free enterprise system, or the advantages of free medicine as opposed to socialized medicine.

* Presented on the Eighth Annual IMS Senior Day, at the SUI College of Medicine, Iowa City.

This spring, I am proud to say, Iowa had two contestants who were national prize winners.

The Community Service Committee also searches out and honors the women, other than paid workers, who have done most in the health activities of their respective localities.

A third type of work conducted by this committee is the sale of handicraft articles that have been produced by handicapped Iowans.

Civil Defense and Safety. The work of these two committees is vital not only to the medical profession but to the preparedness and well being of all people at all times.

Membership. The Membership Committee is indeed vital to the Auxiliary. I should like to be able to say that all Iowa doctors' wives are members of the Auxiliary, but they aren't. Such a goal isn't impossible of attainment, however, for all of the Minnesota doctors' wives belong to the Auxiliary.

The work of the Auxiliary is interesting and varied, and it should appeal to all doctors' wives. Each member receives excellent material for use with church, PTA and other sorts of organizations to which she also belongs. We ask all of you young doctors to urge your wives to join the splendid WA/SAMA group here on the SUI campus.

It was indeed a pleasure for me to meet your WA/SAMA president, Mrs. Anderson, when she was in Des Moines to attend the state convention of our Auxiliary. The Iowa City WA/SAMA is doing fine work, and we in the Auxiliary are most happy to cooperate with it in every possible way.

The Auxiliary takes pride in the SUI College of Medicine, in its splendid faculty, and particularly in you, the members of its 1962 graduating class. We congratulate you on a task well done, and sincerely hope your careers in medicine will be crowned with success.

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Tips for Safety

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Does your high school have a state-approved driver-education course available to all students over 16 years of age? If not, check to make sure that the teen drivers in your family (and adults, too):

1. Have a mature, responsible attitude toward driving.
2. Thoroughly know and obey the rules contained in the state driving manual.
3. Are courteous drivers, yielding the right of way at unprotected intersections and lowering light beams even when other drivers fail to do so. Drivers who are belligerent about their driving "rights" are menaces on the highway.
4. Avoid following cars too closely.
5. Adjust driving speed to road, traffic, pedestrian, weather and physical conditions.
6. Maintain good care of the car, checking it regularly for safety.
7. Can change a tire competently and safely.
8. Know how long it takes to stop a car at different speeds, and how varying weather conditions affect mechanical stopping times.
9. Can react competently, without panicking, in case of a blow-out, brake-failure, off-shoulder turn and skid.
10. Respect crosswalks. Check crosswalks for pedestrians before making a turn.
11. Are sure of speed and distance required in passing and returning to line.

POISONS

1. Store kitchen cleaning preparations on overhead shelves, rather than under the sink where youngsters can reach them.
2. Clear medicine cabinets of outdated prescriptions and first aid remedies that are poisonous if taken orally. Cabinets should be out of reach of small children.
3. Store all cosmetics and medications out of children's reach.
4. Lock poisonous garden and garage supplies such as pesticides, flower bulbs, rodenticides, fertilizers, gasoline and kerosene in the garage or tool shed.
5. Keep laundry supplies like soap flakes, starch and bleaches on an overhead shelf in the utility room.

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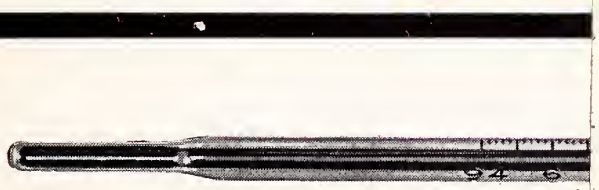

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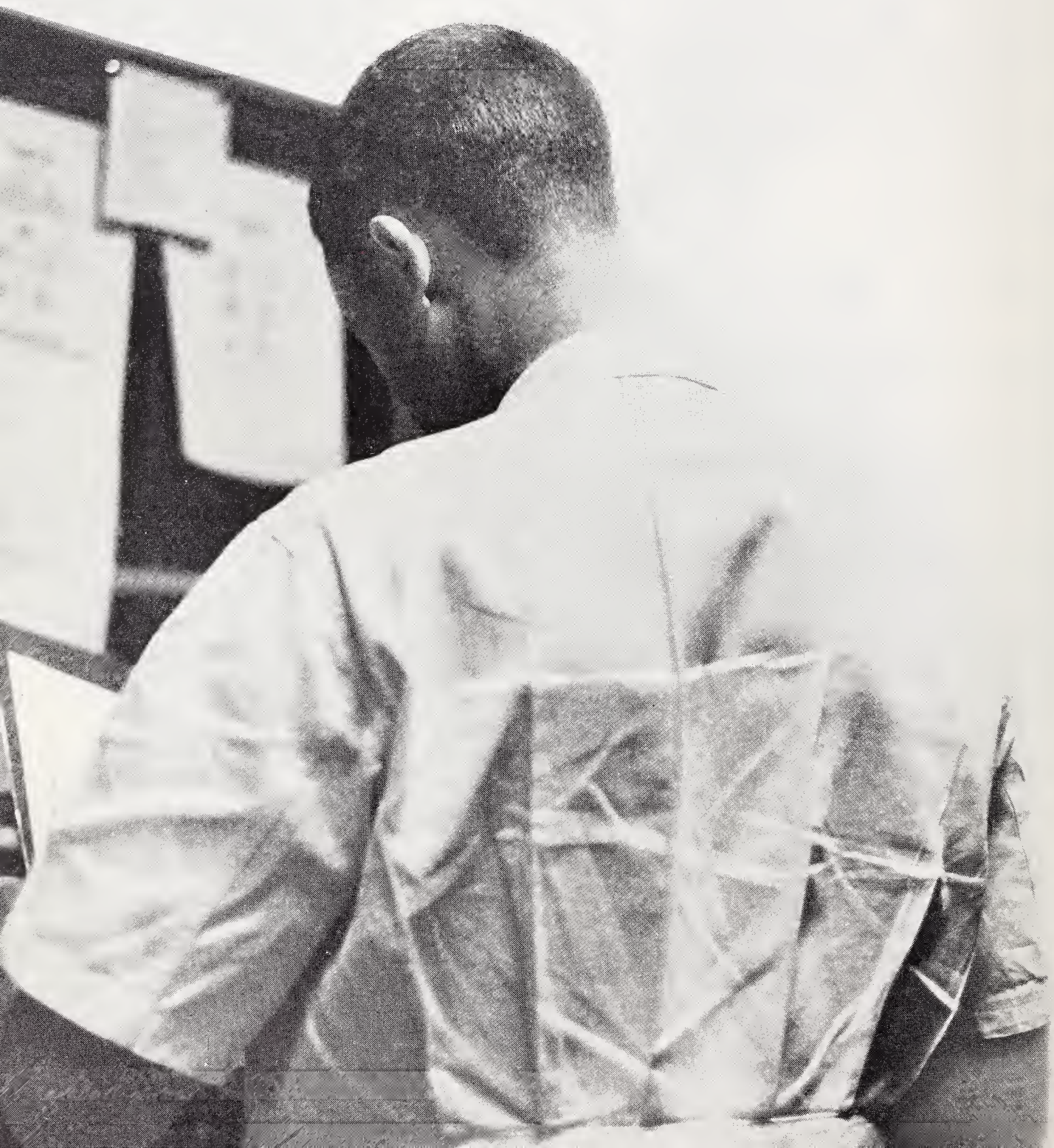

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References: (1) Katz, Y. J., & Bourdo, S. R.: *Pediat. Clin. North America* **8**:1259, 1961. (2) Malone, F. J., Jr.: *Mil. Med.* **125**:836, 1960. (3) Ullman, A.: *Delaware M. J.* **32**:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* **108**:48, 1961. (5) Whitaker, L.: *Canad. M. A. J.* **84**:1022, 1961. (6) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* **34**:187, 1959.

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Scientific Articles

"Ivory Tower" Medicine

TAGUE C. CHISHOLM, M.D.
Minneapolis, Minnesota

Before one can talk about "ivory tower" medicine, he must define the term. When I first asked myself what I meant by "ivory tower" medicine, many weeks ago, I found that the overtones of my definition were filled with scorn and derision. Through the relatives of a child under my care, I had learned that another of my patients, whom I had long since referred to a university hospital, had died five months previously. I had not been informed, and I smarted internally. "Doctors in the 'ivory tower,'" I told myself, "may be more intellectual than I, but they are selfish, thoughtless ingrates who don't give a darn about the referring doctor!" I'm sure I also told myself that their lack of basic thoughtfulness and professional etiquette was one of the reasons why they couldn't compete in private practice.

A few weeks later, however, I once more asked myself, "What is 'ivory tower' medicine?" and that time, my feelings were marked by considerable envy and nostalgia. For too many days, I had been working over 18 hours per day. Two of my office girls had just quit, and the remaining three were disgruntled and anything but helpful. I was disturbed about leftist tendencies in our own federal government. The doctors in Saskatchewan had started down the drain of socialized medicine, and all Canada seemed sure to follow.

I was envious of the "ivory tower" doctors. They had regular hours. Their office personnel problems were handled by professionals. I recognized that their incomes were less than mine, but I envied their low overhead, their fringe benefits and their prospects of secure retirement.

How could I harbor two such totally divergent images of "ivory tower" medicine? I began asking other physicians—both busy private practitioners and full-time academicians—for their definitions, and the answers I got were varied and contradictory. Let us review the ledger. All is not vinegar; nor is it all milk and honey.

THE SHORTCOMINGS OF "IVORY TOWER" MEDICINE

Practically every physician whom I queried said that *"ivory tower" medicine* has become an American cliché synonymous with *university medicine* —with the highest quality of medicine devoted to (1) teaching and (2) investigation. Too many of my respondents, however, either overlooked or ignored the other aspects of university medicine's job—(3) care of sick people, and (4) community leadership in the field of health.

In this regard I should like to quote from a recent article by John S. Millis, president of Western Reserve University, in which he defines the purpose of a university ("ivory tower") medical center: "A university medical center is an institution which must serve with equal devotion and at an equal level of excellence four distinct purposes—education, patient care, research and community leadership." He likened those purposes to a four-legged stool, which is a stable and useful device if the legs are of equal length, but unstable and useless if any one of the legs is short or weak.

For a few minutes, let us review the ingredients of "ivory tower" medicine. Let us measure carefully the lengths of the several legs of Dr. Millis's stool. "Ivory tower" medicine always involves teaching and research. What about this teaching and investigating?

Not all full-time men like to teach or can teach. Many of them spend hours half-heartedly lectur-

Dr. Chisholm is a clinical professor of surgery at the University of Minnesota Medical School and chief of the Pediatric Surgical Service at Minneapolis General Hospital. He made this presentation at the annual meeting of the Iowa Medical Society, in Des Moines, on May 14. 1962.

ing when they'd far prefer to be in their secluded laboratories. The prevalence, among them, of the attitude that teaching is no more than a necessary evil can be seen reflected in the limited distribution of periodicals concentrating on that aspect of their work. Although all physicians in the "ivory tower" regularly subscribe to one or more journals in their specialized fields, fewer than 5,000 full-time physician-teachers, from among 40,000 holding faculty appointments, subscribe to the JOURNAL OF MEDICAL EDUCATION, the only publication in the world whose sole purpose is the dissemination of information and opinion about the specific problems of education in medicine.

Not all full-time men are capable of doing sound investigative work, yet research they must—and publish, they must—or perish. Hence, many ill conceived, poorly conducted studies are poorly reported in our medical journals.

It's remarkable how prophetic Harvey Cushing was when he wrote, in 1926: "In some of our schools so great our emphasis has come to be laid on the science courses, with the patient long hidden from sight, that the better students, under the influence of teachers who have never had clinical experience, naturally come to feel that somehow the practice of medicine among *people* is an all inferior calling compared with the secluded life of the investigator, and that to justify themselves in the eyes of the faculty they must manage to 'do a piece of research.'

"Indeed when those students in some schools reach their clinical years, their senior teachers are often men whose perspective is largely institutional, and consequently it has become, for lack of time, or experience, or interest, no one's business to give instruction in those aspects of medicine which are so important in the young doctor's future: the relation of doctor to doctor; of doctor to patient and patient's family; of doctor to the community; and of our profession to the others, particularly to the priesthood from which medicine took its origin."

I'm impressed that only a very few doctors, inside or outside the "ivory tower," are capable of investigating. Nevertheless, we should not feel that we lose status thereby. To this point, again, Cushing addressed himself nearly 40 years ago: "In these days when science is clearly in the saddle and when our knowledge of disease is consequently advancing at a breathless pace, we are apt to forget that not all can ride, and that he also serves who waits and who applies what the horseman discovers."

As to teaching, once having taken the Hippocratic oath, all physicians are morally bound to teach. Not all can enjoy the prestige of academic rank, but all can instruct nurses, practical aides, ambulance drivers, orderlies, policemen, hospital trustees, newspaper men—the community at large.

Truly, teaching and investigation are two of the four major ingredients of "ivory tower" medicine, but care of the patient and the fulfillment of community responsibilities must not be lost sight of.

THE ACADEMICIANS HAVE THEIR TROUBLES

To go on. . . . You say that full-time teachers of medicine have no *monetary collection problems.* True, they don't have the private practitioner's difficulty in turning accounts receivable into cash, but are you willing to swap your dead beat collections for an academician's annual budget scramble? How would you like to spend hours filling out applications for U. S. Public Health grants and have five in a row turned down? In the meantime, your section chief or dean might be unable to squeeze out one more dime for your overdue salary increase—especially in view of the legislators' new "party line," or the alumni association's dissatisfaction over the number of GP's who emerged from last year's senior class.

Oh, the full-time men live an *unhurried life,* you say. They don't suffer from jangled nerves, as a result of nights punctuated by telephone calls. You'd like your days filled with thoughtful, sober, unhurried, reflective rounds, rather than a screaming office jammed with drop-ins . . . no more shots to give . . . no more house calls? Sounds enviable, doesn't it? But will you change places with the "ivory tower" boys who must attend long, tedious sessions to evaluate the new curriculum, to meet with the governor's committee, or to confer with the alumni council? Would you enjoy inspecting the sanitation in the students' dormitories, serving as liaison between the medical school and the cancer detection lobbyists, defending your school's policies against the antivivisectionists, trying to solve the parking lot problem, or reviewing interns' applications so as to work out the matching plan?

Try to do all these things in an unhurried fashion, and still get home in time for your four-year-old son's birthday party!

And then your chief may order you to go somewhere to give *his* talk, which you've already written; or to entertain someone from Stockholm; or to summarize the CPC cases for the next day. And while he's on the subject, your chief may ask whether *your* manuscript, which *he's* co-authoring, is finished. He reminds you that the publisher's deadline was six days ago . . . remember?

And you say that the academician's life is unhurried!

The creative life—that's what you want. Exploring the new and reviewing the old—how contemplative! With quiet hours in the library . . . yet!

How would you like to work on a problem for 18 months and just begin to see the light . . . only to read about it all worked out by someone else and published in last week's issue of SCIENCE?

Are you complaining about your mountainous piles of unread journals, either in your office or

in your den at home? How would you like to trudge through the winter's snow or the summer's heat to the medical school library only to find that your principal reference work had been signed out for a little over four months to some graduate student who is now in the Army?

Did you ever stop to consider that perhaps you're already in your own creative "ivory tower?" What about the GP at the crossroads who encountered two cases of silo filler's lung disease? He worked it out all by himself while two similar patients sat undiagnosed in the university hospital.

What about the creativity of the GP on the Indian reservation who found 39 cases of acute hemorrhagic nephritis in four weeks? He collected and read his own cultures. He took all his own blood samples to send away for the assaying of antibody titers. Wasn't he being creative when he unravelled the bacterial vectors in his local epidemic?

You may ask how one can be creative while attending patients at the packing plant, or the gray iron foundry, or the county home for the aged. Did you ever analyze the causes of absenteeism at the packing plant? Or of accidents at the foundry? Or of visual degeneration in senior citizens? Creative investigations can be done under the most hectic conditions. Creative thinking can be done by the physician as he is driving out to Swenson's farm, or as he is waiting at the hospital for Mrs. Johnson to deliver.

Medical research and creative thinking don't always require two Ph.D.'s and an electron microscope!

So it's *security* that you want. Surely there are times when we all would like to take a fixed income, have a noncancelable academic appointment, and romantically pursue teaching and investigation. But academic security isn't absolute. Although the chairman of the department may not be able to fire you—he can't if you have tenure—he can find, with regret, that there is no more available space in the lab or that his budget is depleted, or he can assign you 17 more lecture hours when you know that the subject matter can be presented more efficiently through the use of automated teaching devices.

Did you ever think that perhaps the "ivory tower" doctor envies *you*? The academician would like to take your annual trip to Florida in March, and to Canada in November. You recognize that it's not easy for anyone to put his children through college these days, but would you like to try doing it on a salary of $8,900 per year?

Security in the "ivory tower," you say? What security?

PRIVATE PRACTITIONERS ARE SOMETIMES IN ERROR

At another time, and in a different frame of mind, you may rejoice that you're not in the "ivory tower," where all the workers in the vineyard are *starry-eyed and impractical*. We've all known the academician who orders everything and does nothing. We've all smiled inwardly when he admonished us, "You don't find what you don't look for." So in one patient he ordered the electrophoretic pattern on the plasma proteins; in another the amylase levels on a 24-hour urine collection; and in a third the electroencephalogram, though the patient's complaint was chronic abdominal pain. Then amusement turned to chagrin, when we learned that he had uncovered wierdies —agammaglobulinemia, chronic relapsing pancreatitis and abdominal migraine.

We soothe our consciences by retorting that such esoteric studies can be done only in the "ivory tower," where the legislature pays the bills. Yet you and I have seen private physicians whose bills for laboratory work would make a surgeon's fee for a gastrectomy look paltry. Not all impractical doctors are in the "ivory tower."

Or perhaps you soothe your conscience with this rationalization: "Maybe I can't lick him at the use of the slide rule or the vector electrocardiogram, but, darn it, I have sensitivity for my patients' feelings. The man practicing 'ivory tower' medicine is too much a 'cold fish.' I'm more practical and have lots of empathy for my patients." Emotionalism or sentimentality is no excuse for intellectual slovenliness, or for slipshod medical practice. Neither does cold academic competence excuse smug, impersonal condescension.

Vallory-Radot's LIFE OF PASTEUR underscored medicine's three lessons of life, of which the last is the greatest. Medical practitioners inside and outside the "ivory tower" should study them well. Medicine taught Pasteur first the value of the scientific method, with its rigid discipline and absolute honesty. Second, medicine bore out the inestimable value of the intimate friendships one can earn, and without which a man is a pauper. And finally, medicine's greatest lesson is *humility* before the unsolved problems of the universe. "When the notion of the Infinite seizes upon our understanding, we can but kneel."

Ours is the challenge to temper our pursuit of the practice of the science and art of medicine with an alert yet practical mind that is humble before the patient, the nurse, the medical student, the fellow doctor, the fellow man, and the power of the Infinite Healer.

Like me, you have heard that the doctor in the "ivory tower" has no concept of *the sacredness of the doctor-patient relationship*. The sacredness of the patient's trust in his doctor and the physician's fulfillment of that trust can be denied only by a fool. The family physician is, by and large, the one who is admired, trusted and loved—not the specialist. The referred patient's immediate confidence in his specialist has nothing to do with the specialist's board certification, with his memberships in learned societies or with the depth of the carpeting in his office. That confidence is a direct

translation of the patient's faith in his family doctor—no more and no less! The urban specialist who attributes it to his superior skill or brilliant mind is riding to a fall.

But the family doctor must not exploit his time-honored privilege by failing to listen, by seeing too many patients too hurriedly, by becoming a "shot doctor," or by running a cash register instead of a profession of the highest type. Both "ivory tower" specialists and small-town generalists must be devoted—yes, consecrated like St. Luke to the unselfish care of suffering humanity. Medicine in its finest sense is a calling, not a business. The doctor-patient relationship is equally sacred to the academician and the general practitioner.

MEDICAL ETHICS SHOULD GOVERN ALL OF US

May I ask whether the physician practicing "ivory tower" medicine is *ethical?* What are medical ethics? In about 400 B.C., Hippocrates laid down a basic code of medical ethics. It applies to all doctors and embodies four major principles. The first is that one's aim must be to advance the profession, rather than oneself. The second is never to use medical knowledge or privilege to injure, but always to help the patient. The third is to defer to a specialist whenever his assistance is in the best interests of the patient. The fourth is to maintain professional secrecy.

The ingredients of the Hippocratic oath apply equally to academicians and to practitioners. From time to time, all physicians would do well to reread that ancient set of rules. The academician would then speak less disparagingly of his fellow practitioner, would help him in every way he could, and would send the patient back to him as soon as possible. The practitioner, on the other hand, would then stop keeping the patient to himself as long as possible, being ruled neither by monetary considerations nor by the fear of being revealed as inadequate.

Lord Lister epitomized the Golden Rule, as it applies to medicine, when he wrote: "The one rule of practice is to put yourself in the other fellow's place."

DISCUSSION

In the foregoing remarks, I have endeavored to dissect and to comment upon some of the ingredients of "ivory tower" medicine. These have included: (1) Teaching and investigation; (2) Care of the sick as human beings; (3) Community leadership in the field of health; (4) Monetary problems in and out of the "ivory tower"; (5) The "unhurried" life; (6) Personal and professional security; (7) The "creative" life; (8) The "practical" approach to medical problems; (9) The sacredness of the doctor-patient relationship; and (10) Medical ethics.

The colossal assemblage of new scientific knowledge is changing medicine rapidly and profoundly. More and more does the day's work run the physician, rather than the physician direct the day's activities. Before it is too late, doctors need to reevaluate their professional know-how, and tool up for modern-day production. Present-day practitioners and teachers need more sound training in the use of the spoken and written word in order to remain a society of educated gentlemen. Rapid reading and efficient listening are as essential today as safety belts. The days of the lone wolf—the solo practitioner—are waning. To belong to a partnership or clinic group is increasingly attractive, for only by that means can one have time to sleep, to read, to live, to love one's family, to attend meetings, to think, to play and to pray. The young doctors of tomorrow need to become familiar with management technics, methods of communication and the principles of automation.

With all this acceleration, the role of the preceptorship—where the student spends some time with the family doctor before finishing medical school—is particularly important. During the preceptorship, the practicing physician can transmit intangible values to the medical student from his wealth of experience, and the medical student can stimulate the practicing physician by relaying to him the latest information, fresh from the university classroom.

In our personal planning, in the years ahead, we doctors must provide what Alexis Carrel calls "inward time." We should read more of the biographies of the great men of medicine, so that we may be reminded again and again of our great heritage. If we don't spend time replenishing the wellsprings from which medicine arose, the time may come when our profession will have dried up at the source. Only by such conscious effort can physicians develop *mature minds,* with a sense of obligation to fellow-man and to God.

Like Professor C. P. Snow, of the Department of Philosophy at Columbia, I feel more and more every year that I am moving between two cultures—two groups, the full-time academicians and the practicing physicians—comparable in intelligence, identical in race and not grossly different in social origins or standards of living, who have almost ceased to communicate. A polarity in medicine is emerging, with the intellectuals in the "ivory tower" of the university medical center, on the one hand, and the private practitioners of medicine on the other. If the American medical profession isn't alert, this country will soon develop a double standard of medical practice much like that which has emerged in Germany, Sweden and Japan.

Here exists an urgent bivalent responsibility between men of university "ivory tower" medicine and men practicing everyday medicine. The two groups must communicate their needs, their problems, their aspirations and their failures. The two must have mutual trust and respect, within the

framework of our professional family of rugged individualists. Both must learn the great lesson of *humility* before all of Nature's unsolved problems. Each is essential—one to the other.

Truly, the intellectuals in the university medical centers and the physicians practicing in the fields are travelling a common path, searching out the truths, caring for fellow beings who are ill. For certain, "ivory tower" medicine is an attitude, a state of mind—not a place. Teaching, investigating, caring for the sick and providing community leadership are activities that can be conducted at the rural crossroads as well as on the academic campus.

If one believes that the translation of "ivory tower" medicine into the practice of everyday medicine is more challenging today than previously, one has merely to reflect on Hippocrates' first aphorism, recorded over 2,000 years ago:

"Life is short and
The art long.
The occasion instant,
Experiment perilous,
Decision difficult."

The Evolution of the Rational Approach To Fluid and Electrolyte Balance

EDWARD E. MASON, M.D.
Iowa City

THE CENTRAL PROBLEM in fluid and electrolyte balance is determined by the individual patient's needs and by the facilities available. The actual demand that a physician makes upon his pharmacy to supply specific kinds of fluids will depend upon his analysis of the patient's problems, his impressions regarding the intrinsic value and actual cost of available solutions, and certain restrictions imposed by the system of fluid therapy available in the hospital.

In the early days of pharmacy, it was standard practice for physicians to write rather detailed prescriptions which were filled exactly and individually for each patient. As in other aspects of modern life, a certain amount of freedom has of necessity been surrendered for the sake of extending the greatest good to the largest number. It is obviously impractical to consider making an extensive analysis of needs by every conceivable, available means for every patient prior to the administration of fluids. Furthermore, it is impractical to individualize the fluid prescription for each patient to such an extent that no two patients receive exactly the same fluid therapy.

Special laboratories were set up in the 1930's for the preparation of intravenous fluids which would be sterile and free of pyrogenic materials. The production of large volumes of intravenous fluids of uniform composition has made fluid therapy possible. The future of medicine and pharmacy as regards fluid therapy would appear to be in the preservation of efficient, general purpose, large-volume parenteral solutions, while at the same time improving and developing new ways of individualizing these common-base solutions so that they fulfill the requirements of specific, non-average patients.

Healthy people drink, eat, urinate and defecate. Severely ill patients frequently do not. The history of medical practice is interspersed with recountings of attempts to turn these rubrics around, and of the iatrogenic disturbances that have resulted. In other words, it has seemed, at times as though treatment consisted of forcing fluid into patients to make them healthy again. There have been some pseudo-science, some over-simplification and some manipulation of conclusions, without adequate thought about the basic overall problem. Momentous discoveries were made early in this century, and they are being remade today. From this cyclic, oscillating response to the appearance of new knowledge and newer equipment, technics, and fluids, there has come a gradually increasing general understanding of the proper use of fluid therapy as an adjunct to complete and individualized patient care.

MISTAKES AND NEGLECTED TRUTHS

The literature is voluminous, but I should like to select a few of the papers which illustrate the importance of basic principles and the dangers of confusing circular reasoning and superficial wishful thinking with scientific advancement.

In 1909, the famous teacher, surgeon and one-time AMA president, James B. Murphy, published a paper on the use of proctoclysis in peritonitis.

Dr. Mason is a professor of surgery at the S.U.I. College of Medicine.

It is difficult to understand the recommendations he presented without an awareness of the belief, current at that time, that the colon was imbued with some discriminatory powers and could regulate fluid intake, delicately attuning itself to the needs and excesses of the body. Consequently, it was supposed, all one needed to do was to use a large-bore rectal tube with plenty of large openings at its tip and provide an average of 18 pints of fluid, with a range up to 30 pints (for an eleven-year-old), in 24 hours. Whatever was absorbed was assumed to have been needed. Murphy did mention his surprise at "what a large quantity of fluid is taken up by the rectum, and how little irritation and disturbance [the tube] produces, even in days of continuous use. . . ." Murphy also observed that patients occasionally became edematous, and that proctoclysis should be used with great caution in patients with penumonia.

In 1935, a pathologist in Kansas City, Ferdinand Helwig, published a report of a fatal case of water intoxication, and presented clinical, pathologic and experimental studies which destroyed the long-held belief that proctoclysis was safe and self-regulatory. Helwig wrote, "These facts strongly suggest that perhaps the most important factor in the production of the cerebral edema, which is the major pathologic lesion of water intoxication, is a disturbance in the normal isotonicity of the blood." Helwig reported a second case in 1938, and reviewed at least one additional case during a clinical pathologic conference at Wadsworth V.A. Hospital in 1947, while I was stationed there. There must have been hundreds of such patients whose condition was never recognized. Proctoclysis has ceased to be fashionable since the advent of intravenous therapy, but in 1951 Hiatt reported the same complication from repeated enemata as results of attempts to clean out the colons of children with congenital megacolon. We have observed occasional such instances even in recent years.

This same repetitive over-enthusiasm for treatment, with inadequate attention to the individual patient's exact needs, has also marked the history of parenteral fluid therapy. Much of the excess seems to have been related to salt administration. The late Rudolph Matas wrote in 1924 about the dangers of salt and his preference for 5 per cent glucose. He, in turn, quoted warnings that had been issued by Widal and Javel in 1903 regarding "the dangers of salt retention long insisted upon by the French school." In 1936, Bernard Fantus published a review of the results of parenteral fluid therapy in Cook County Hospital after institution of a special fluid-preparation laboratory. He observed, "Since physicians have learned to give fluid intravenously without immediate ill effect, streams of fluid, literally, have been pumped into the veins of defenseless patients with very little actual knowledge of what becomes of it or of them." These excellent papers were not sufficiently read or understood, and in 1944 Coller, Campbell, Vaughn, Iob and Moyer again eloquently pleaded the case for postoperative salt intolerance.

MORE ERRORS

At about that time, instead of giving three or four liters of intravenous saline, it became common to administer only glucose solution during the postoperative period, but the volume remained too high. Physicians, generally, believed that the kidneys would excrete excess fluid. This was not true. There was an increase of antidiuretic hormone, and patients were prone to develop water intoxication during the early postoperative period. Though this phenomenon was blamed on fluid retention, it was equally due to excessive administration, since fluid must be given before it can be retained.

As more was learned about fluid balance, the leaders in medicine and the pharmaceutical industry became imbued with a desire to simplify and rectify parenteral fluid therapy. There was a rash of special intravenous fluids with eponymic and alpha-numeric, mnemonic labels, so that if the physician had a special problem he could probably find a special bottle of fluid for it, provided the stock were sufficiently complete. Also, dozens of books were written about fluid balance, and a specialist with a fluid balance problem could consult the book written especially for his type of patient, if his library were large enough.

Much of this activity seems to have been excessive, and more misleading than helpful. Usually, special solutions were used so infrequently by any one physician that he no longer really knew the composition of the fluid. Furthermore, every patient is a little different from every other one, and there was always the danger that the special solution was inappropriate in one or more respects. Again, attention had been focused upon the business of treating textbook conditions—treating the average patient with the average condition. Usually all went well, but the peculiar advantages of the observant, thinking, prescribing physician tended to be bypassed.

THE TRUE FACTS HAVE BEEN STATED AGAIN AND AGAIN

Throughout the whole history of parenteral fluid therapy, there has been a gradual dissemination of really basic knowledge. The original observations about acid-base balance, for example, were made around the turn of the century. Walter described the measurement of CO_2 content in blood in 1877. Christiansen, Douglas and Haldane, in 1914, described saturating the blood with arterial levels of CO_2 and measurement of CO_2 capacity. Michaelis was writing about Wasserstuffionen-concentration in 1941. Van Slyke and Cullen reported studies of bicarbonate concentration of blood plasma, its significance and its determination as a measure of acidosis in 1917, and gave credit to Henderson's

1909 publication as the clearest description of the manner in which the body uses carbonic acid and bicarbonate to maintain neutrality.

The writings of Marriott and Gamble and dozens of more recent contributors have served to disseminate and interpret knowledge of body chemistry and the optimum use of parenteral fluids. The balance concept has been carefully nurtured.

The practical present-day approach is to individualize through a systematic appraisal of each patient's problem. The scientific method is applied. First, data are collected from history, physical examination and laboratory tests. Second, an analysis is made of these data in terms of the patient's total and compartmental fluid volumes, the tonicity and chemical composition, and the acid-base balance. In addition, the patient's current needs for metabolic fluid and replacement of abnormal fluid loss are assessed. A diagnosis is then prepared, and a prescription is written which is specific both qualitatively and quantitatively for that patient and at that time. The fluids are then ordered with a knowledge of what is available in that hospital.

PROCEDURES FOLLOWED AT S.U.I.

At the State University of Iowa, every effort has been made to provide fluids in their simplest form. We feel that appropriate combinations of isotonic saline with or without glucose, 5 and 10 per cent glucose, and 1/6 M sodium lactate plus additives of potassium, calcium and vitamins will provide the majority of patients optimum treatment. In addition, occasional patients need units of 300 ml. of 3 per cent saline, or 200 ml. of 5 per cent saline. Ampules of molar sodium lactate may occasionally be required. Intravenous ammonium chloride is almost never requested. Saline is usually sufficiently acidifying since it has 50 mEq/L. of chloride excess when mixed with extracellular fluid. Amino acid solutions and fat emulsions are occasionally used.

The emphasis is always on balance. The exact needs of the patient are supplied as nearly as possible. Patients frequently are weighed. Intake and output records are closely watched. Occasionally, when acute renal failure occurs and excesses of water, potassium, urea and other wastes accumulate, there is an expensive way of restoring balance. Dialysis and ultrafiltration with the artificial kidney can restore chemical balance and remove liters of excess fluid. Special resins are sometimes used to reduce total body potassium. Human serum albumin and dextran are occasionally used in plasma-volume deficiency. Recently, Swedish dextran of low molecular weight (40,000 average) has been used in treating shock, sludging and acute oliguria. Ten per cent mannitol has been used as an osmotic diuretic in acute renal insufficiency. Urea has been used for its immediate and evanescent osmotic effect in the treatment of cerebral edema and acute glaucoma.

The availability of plastic materials and tubes has done more to revolutionize parenteral fluid therapy in the last 15 years than any other single item of equipment. Heparin and intravenous antibiotics continue to be frequent additives under specific circumstances. Norepinephrine and, recently, antagonists such as phentolamine have been used in selected patients with abnormal states of vasomotion.

RECOMMENDATIONS

Always, the parenteral fluids and their additives must be administered for specific reasons. The novelty of fluid and electrolyte administration has now worn off. Physicians give parenteral fluids today with a vast background of knowledge, and fluids and electrolytes tend ever more to be in balance, even though the patient may sometimes still die from other causes. Modern physicians *do* know what happens to the fluids administered, and they watch the responses of their patients to treatment as an additional diagnostic measure—*diagnosis ex juvantibus.*

In order to accomplish this result, continual study and review are required—at postgraduate courses, in reading specific articles and books, and in reviews of current, especially difficult patient problems with consultants at the bedside or in special seminars. There is also some advantage in increasing the interchange between physicians and their colleagues in pharmacy, biochemistry, nursing, and many other disciplines, who control the external environment which a sick patient depends upon for optimum fluid and electrolyte balance and for survival.

Good fluid-balance records are necessary and they will be obtained best if every potential participant in the patient's care knows something about what the physician is trying to accomplish and why he needs complete and accurate records of fluid intake and output. Physicians in a hospital should learn from their pharmacist what the overall pattern of intravenous fluid is, and together they should decide whether unnecessary reduplication of types of fluids exists, or whether there is a need for certain types of fluids that are not already is stock.

Basic to all activity in this area should be, first, an alertness to and an interest in existing local problems, and second, a cooperative effort at finding the solutions which are best for all patients.

IMS CONFERENCE OF COUNTY SOCIETY PRESIDENTS AND SECRETARIES

October 5

Hotel Savery, Des Moines

10 a.m.-4 p.m.

Office Gynecology

EDWIN J. DeCOSTA, M.D.
Chicago, Illinois

OFFICE PRACTICE CONSTITUTES the greatest part of the daily activity of most gynecologists. In addition, office practice is our best contact with the public, and our patients' evaluation of us is often based upon our office procedures. So it is important for us, from time to time, to appraise these activities.

Office gynecology as practiced in 1962 is not the same as it was in 1952 or in 1942. Nor should it be. It is part of a living, growing, changing specialty. As long as one remains curious and receptive, he will make changes, and we can hope they will be for the better. If our procedures today are similar to those that we followed 15 or so years ago, it behooves us to take stock, because in all likelihood modifications have been developed, and we may not have been mindful of them.

Obviously, I shall be unable even to touch upon all the features of office practice. Therefore, I have chosen those problems and procedures which I think are most in need of discussion. These will include certain aspects of physical examination, and the management of the more commonly encountered problems. Unfortunately, much must be omitted or passed over lightly.

In every instance it is our responsibility to make, or at least try to make, a diagnosis before undertaking treatment. The diagnosis will depend upon a careful history, a thorough examination and such laboratory procedures as are indicated. Of the history, I need say nothing, except to issue the reminder that the poorest note is better than the best memory.

A great deal could be said about the physical examination, but I shall refrain—except to enter a plea for routine breast examination whenever the opportunity presents itself. The patient cannot be expected to examine her own breasts properly. Even for us, breast examination may be difficult, but it nevertheless is a part of our responsibility. And finally, if there is a mass or even a questionable mass, we must biopsy it. Our fingers are not microscopes, and to procrastinate may be to condemn the patient.

Much could be said about laboratory procedures. Again I shall refrain from comment, except to enter a second plea—for routine cervical cytologic study. One of the great milestones in gynecologic progress is the Papanicolaou smear, and yet there are many men who, living in the past, discount its importance. This simple test for abnormal cells may well be the most important single gynecologic advance in our lifetime. The incidence of carcinoma *in situ* is somewhere in the neighborhood of 0.4 per cent, or one in every 250 patients. Hence, it should be mandatory to take a yearly smear on every patient, from the menarche up, who crosses our threshold. This means *all* women, of *all* religions, and whether pregnant or not.

There are two prevalent misconceptions which must be dispelled. One is that there are pregnancy changes which resemble carcinoma, and the other is that Jewish women do not have cervical carcinoma. We believe that carcinoma *in situ* is a precancerous condition, and that it is not influenced by pregnancy. It may be detected in either pregnant or non-pregnant women. Occasionally, in both pregnant and non-pregnant women the lesion seems to disappear after biopsy; perhaps the biopsy has completely extirpated it, although this seldom happens.

Jewish women do have cervical carcinoma. Although the incidence is low, it is about the same in both non-Jewish and Jewish women of similar socio-economic strata. And a final word regarding the significance of carcinoma *in situ*, for the Thomases who doubt: It is now quite generally accepted that approximately one-third of women with carcinoma *in situ* will have evidence of invasion within 10 years.

THE MAKE-UP OF THE GYNECOLOGIST'S PRACTICE

Office gynecologic practice has changed. We no longer see patients with lues, and only rarely do we see one with gonorrhea or its complications. Now, we are called upon to perform periodic examinations on presumably healthy women, and our counsel is often sought concerning premarital, marital, "conceivable" and "inconceivable" problems. It might be well to consider just why women consult the gynecologist in 1962.

I compiled the following list of causes for gynecologic consultation from a survey that I made among my colleagues, and then modified in the light of my own experience. Obviously, there will

Dr. DeCosta is an associate professor of obstetrics and gynecology at the Northwestern University Medical School, an attending obstetrician and gynecologist at Passavant Memorial Hospital, and an attending gynecologist at Cook County Hospital, Chicago. He made this presentation at the 1962 annual meeting of the Iowa Medical Society.

be some variations in the order of frequency, depending largely upon the ages of the women who comprise the practice, but on the whole these are the most common reasons for patients' visits, approximately in the order of greatest frequency:

1. Leukorrhea, discharge and/or irritation.
2. Routine periodic check-up.
3. Menstrual abnormalities—too much, too little or postmenopausal bleeding.
4. Breast problems—pain or swellings.
5. Office services: premarital, marital and prenatal counseling, preconceptional and conceptional advice, and contraceptive information.
6. Climacterium and premenstrual tension.
7. Pelvic discomfort or pain.
8. Sterility study and treatment.
9. Miscellaneous—pregnancy tests, obesity, etc.

"VULVO-VAGINITIS"

The foregoing is a lengthy list. Let us first consider the common causes of leukorrhea, abnormal discharge or vaginal irritation. We can lump these complaints together under the term vulvo-vaginitis, because usually there is a vaginitis, even though the complaints are often due to vulvar irritation. The discharge can emanate from anywhere within the genital tract, but most often it is from the vagina. Before we can treat, we must diagnose, and to diagnose means determining the site as well as the cause of the discharge or irritation.

Acute cervicitis *per se* is a rare cause for complaint. Generally it is due to gonorrhea or trauma, and responds to antibiotic therapy! When it is present, the patient often complains also of dysuria and frequency, and has an accompanying urethritis.

Excessive secretion of clear mucus without associated vulvar irritation may be complained of. It is primarily a nuisance, and may not have been present before the baby came. This type of discharge is often referred to as due to chronic endocervicitis, and on biopsy of the cervix it is invariably reported as such. On examination, one notes old laceration, ectropion or erosion. The discharge is mucusy, clear or slightly turbid, and there are no signs of active inflammation. I think the term *chronic endocervicitis* is an unfortunate one. These changes are generally a consequence of childbirth trauma. The discharge is quickly "cured" by cauterization of the cervix, which destroys the overactive mucus-producing tissue. I should also call your attention to the cyclic change in cervical mucus. At the time of ovulation, many women observe an increase in mucus discharge sufficient to be annoying. This is quite normal. The mucus has become thinner and more abundant, for the more hospitable reception of any sperm which may want to traverse the canal.

In the adult we encounter four types of true vaginitis. If it is recent and still in the acute phase, the patient may complain of itch, odor, discharge or irritation. In the chronic phase, the patient is often quite unconscious of her affliction. She accepts the smelliness and excessive secretion as woman's lot, or she douches and thinks that she has done everything possible to correct the condition. At times, her physician may have prescribed the douche, without making a diagnosis. His was hopeful therapy, of the empiric kind, which not only failed to cure but may also have masked the pathology.

Incidentally, while I am on the subject, let me say that I never cease to be amazed at how often douches are prescribed by physicians. I can understand that a douche might be used after coitus or menses, as an expedient for the removal of undesirable secretions. But I consider routine douching a pernicious habit. If there is a vaginitis, it should be properly treated, not douched over. Generally, the bath or shower is the only requirement in the family circle.

The simplest vaginitis is the type seen in the post-menopausal woman, and it is due to *senile changes*. The discharge is watery, odorous and thin, and there may be itch and vulvar irritation. The vagina is atrophic and red. The smear reveals basal cells and mixed organisms, but nothing specific. Treatment is easy—small doses of estrogen, as for example .02 mg. ethynyl estradiol daily—and within a few days the patient is generally well on the mend. The dosage of estrogen is gradually reduced to once or twice a week, and then is stopped entirely.

A bit more difficult to cure, and much more common, is vaginitis due to *candida* (monilia or yeast). This ubiquitous organism is always lurking around, seeking a favorable medium for growth. It finds this medium particularly in the vagina of the diabetic or the woman who has been given antibiotics. Ordinarily, treatment with one of several time-tested preparations is satisfactory. The old standby was gentian violet in 1-2 per cent aqueous solution. The vaginal mucosa was painted every other day, and most patients were cured within two weeks. But the gentian violet was miserable to use because of the great staining potential, and in a certain number of patients it caused a chemical vaginitis and vulvitis.

If you must use the dye, Gentia-Jel and H Y V A are on the market—less messy but still a nuisance. I prefer Propion Gel as a routine. This clear, colorless jelly is used at bedtime for several weeks. It rarely causes irritation and seems to effect a cure in a high percentage of patients. If this fails, I resort to mycostatin vaginal tablets, or to one of the gentian violet preparations. By switching from preparation to preparation, avoiding all antibiotics, encouraging a high protein and low CHO diet, and insisting that condoms be used, we can cure nearly all of our patients.

Vaginitis due to *hemophilus vaginalis* is a relatively new entity. This type of vaginitis, leading to a greyish, watery, odorous secretion, was con-

sidered nonspecific until recently. Then Gardner and Dukes[1] incriminated a fastidious bacillus that is cultured with difficulty. There still is a question regarding its pathogenicity, since the organism is often demonstrated in women without clinical findings.[2] The treatment is not easy. The sulfa drugs appear to be beneficial. The organism is transmitted sexually, and again, I insist on condoms. I also use a mild acid jelly, like Acijel, for many weeks with, I think, fairly good results.

And now we come to our old friend, *trichomonas vaginalis*. Perhaps we should call trichomonas vaginitis "the French disease," because it was first described by a Frenchman, Donné,[3] in 1836, and now it appears that it finally will be cured by discoveries of two Frenchmen: Cosar and Julou.[4]

I can remember that many of my colleagues lamented that they were unable to cure trichomonas, even in a reasonable percentage of their patients. They will do better now, but they must alter their attacks. How does the woman get trichomonas infestation? It is not from the G.I. tract, and it usually is not from the swimming pool. In the great majority of instances it has been shown that the organism is spread by intercourse.[5] It is frequently found associated with gonorrhea,[6] it is most prevalent in those males and females who are most promiscuous, and it is very difficult to irradicate unless the bipartisan aspect is considered. In the general population, the percentage of women having trichomonas varies from 10 to 45 per cent, depending upon who is studying whom. In my service at Cook County Hospital, some 70 per cent of patients have trichomonas and are not even aware of their foul, purulent discharge. They think it's normal! It is not normal, but it certainly is prevalent among the County Hospital clientele. Incidentally, it has been shown that 60 per cent of males harbor trichomonas when their "friends" are under treatment for vaginitis from this organism, whereas the overall incidence of trichomonas in the male population is probably no more than 4-8 per cent.[7]

Somehow, many physicians refuse to accept a veneral link in this unpleasant vaginitis, perhaps because they find it in their best friends, and there is always the implication that they or their spouses have been searching for greener—or should I say redder—pastures.

Today we can treat and cure trichomonas in a short time with oral medication. Metronidazole (Flagyl, 8823 R.P.) or 1-hydroxyethyl-2-methyl-5-nitro-imidazole, has revolutionized the treatment of trichomonas. Many reports attest to a cure rate of about 90 per cent after one week of therapy—250 mg. t.i.d. There are a few side effects, generally confined to mild gastrointestinal upsets, but there is no evidence of real toxicity. I have had the pleasure of using Flagyl and can only praise it; it is truly a wonder drug, and will take the sting or itch out of trichomonas. But there is one problem: you cannot buy it in the United States. The Food and Drug Administration has not permitted release, largely because one of the investigators described a drop in the leucocyte count.[8] But I predict release will be forthcoming soon. Thousands of women all over the world have been treated, and there is not a single reported instance of serious effect—which is more than one can say for aspirin! In the meantime, the Canadian pharmacies are doing a big business in shipping Flagyl across the border, often at a moderate increase in the market price.

So much for Flagyl and the F.D.A. Trichomonas vaginitis is curable with Flagyl. But remember that infestation is demonstrable in 60 per cent of our patients' male contacts! They need treatment too![9]

USES FOR PROGESTATIONAL AGENTS

During the past decade there have been tremendous advances in certain aspects of endocrinology. We shall consider only four successful applications: the suppression of ovulation, the management of dysfunctional uterine bleeding, the management of premenstrual tension, and the management of amenorrhea. In each of the above situations, the newer potent progestational substances are remarkably effective. At present, there are five such substances: norethynodrel with ethynyl estradiol, marketed as Enovid; norethindrone and norethindrone acetate, marketed as Norlutin and Norlutate; medroxyprogesterone, marketed as Provera; and progesterone caproate, marketed as Delalutin. The first three are 19 nor steriods; the latter two are synthetic progesterones. Several other similar substances are just now reaching the market. All have about the same properties, and all are well advertised and merchandized. There are differences, however, in the actions of these hormones. All produce a good progestational endometrium, but the 19 nor steroids have other effects as well—estrogenic, androgenic, and anti-gonadotropic. Hence, one's choice of hormone will vary with the indications for its use.

Enovid has been widely used as an oral contraceptive because it effectively suppresses ovulation.[10] It is given daily from the fifth to the twenty-fourth day of the menstrual cycle, in a 5 mg. dose. It does well as a contraceptive, but has certain disadvantages. Those who favor Norlutin believe that it is just as effective as a contraceptive and produces fewer side reactions.[11]

My own experience has been limited to Enovid. It is satisfactory as a contraceptive, but about 25 per cent of my patients discontinue the method because of side reactions. These findings are in keeping with the report of Cook *et al.*[12] The reactions are similar to those of early pregnancy: nausea, vomiting, tiredness, bloating, and fullness and tenderness of the breasts. These usually pass off if therapy is continued. But in addition there are other problems which are more serious.

Some patients have complained of loss of libido, and others of amenorrhea or bleeding while taking

the pills. Generally the bleeding can be controlled by doubling the daily dose of Enovid, but sometimes it persists. To ignore persistent bleeding may be to overlook serious pathology. Hence, if the difficulty persists, we must investigate further, and this means a curettage and cervical biopsy.

To epitomize my own philosophy, there is a place for oral contraception, particularly in women who are burdened with males who do not understand, or in women who just can't use a diaphragm because of anatomic configuration, or who refuse —or whose husbands refuse—to use other methods of contraception. I discuss the pros and cons with such women, making them mindful of the problems, and then permit them to make their own selection.

I think there is a real place for the progestins in the management of the patient with dysfunctional bleeding. By *dysfunctional bleeding,* we mean abnormal uterine bleeding which occurs in the absence of organic disease. This means that we have definitely ruled out organic disease from the cervix, uterus and ovaries, and that we have also ruled out general medical and iatrogenic disorders. To do this, it may be necessary to perform a curettage, a procedure that has a further advantage in that it will cure about 60 per cent of dysfunctional bleeding.

For the patients in whom curettage has revealed no pathology and in whom abnormal bleeding recurs, I use the progestins in one of two ways. One is to use Enovid to inhibit ovulation during several complete cycles, exactly as I would if I were using it as an oral contraceptive. The other is to build up the secretory phase with a progestogen like Provera during the latter half of the cycle. Actually, it probably makes little difference which method is used. In either case, we are hoping to reestablish a normal hypophyseal-ovarian relationship by a means that we don't thoroughly understand. This technic, then, is like shaking a clock that has stopped for no good reason.

Progestogens are of value in the management of premenstrual tension, and a very satisfactory preparation for this purpose is Cytran. It is a mixture of a diuretic, a tranquilizer and medroxyprogesterone. One starts the patient on one or two tablets daily with the onset of tension complaints, some 10 days or less before the expected onset of menses. Here again, a hormonal imbalance is postulated. The progestogen seems to mobilize the salt, the diuretic relieves fluid retention, and the tranquilizer soothes the troubled nerves. The results are gratifying.

Primary and secondary amenorrhea may be difficult to manage. Again, we must give the patient a very complete workup, to rule out pregnancy and other glandular disturbances. Having ascertained that everything is normal, I would treat this patient with either Provera or Enovid, aiming to induce withdrawal bleeding for several months. Again we attempt to shake the clock; i.e., we point the way for the endocrine mechanism to follow, and it often does what we want it to do.

There is a form of mild adrenal hyperplasia worthy of special note. Patients so afflicted are infertile, have amenorrhea or oligomenorrhea, and tend to be hairy. One thinks of the Stein-Leventhal syndrome, but the ovaries are normal. If we give such a patient a small amount of corticosteroid—such as dexamethasone, .75 mg. per day for a couple of months—we are often rewarded by regularly recurring menses and even conception. I am convinced that mild adrenal hyperplasia occurs much more commonly than we suspect. We believe that the basic difficulty in this instance is a defect in the biosynthesis of cortisol. Hence, therapy must be continuous, but with the newer corticoids there are few side reactions and there is minimal adrenal suppression.

BIBLIOGRAPHY

1. Gardner, H. L., and Dukes, C. D.: Haemophilus vaginalis vaginitis: newly defined specific infection previously classified "nonspecific" vaginitis. Am. J. Obst. & Gynec., **69**:962-976, (May) 1955.
2. Lapage, S. P.: Haemophilus vaginalis and its role in vaginitis. Acta Path. Microbiol. Scand., **52**:34-54, 1961.
3. Donné, A.: Animalcules Observés dans les matières purulantes et le produit des sécrétions des organes génitaux de l'homme et de la femme. C. R. Acad. Sci. (Paris), **3**:385, 1836.
4. Cosar, C., and Julou, L.: Activité de 1′ (hydroxy-2′ éthyl)-1 méthyl-2-nitro-5 imidazole (8.823 R.P.) vis-a-vis des infections experiméntales à Trichomonas vaginalis. Ann. Inst. Pasteur, **96**:238-241, (Feb.) 1959.
5. Nicoletti, N.: Problem of trichomoniasis of lower genital tract in female. Brit. J. Vener. Dis., **37**:223-228, (Sept.) 1961.
6. Rees, E.: Systemic treatment of Trichomonas vaginalis infestation in women: preliminary report. Brit. Med. J., **2**:906-909, (Sept. 24) 1960.
7. Watt, L., and Jenison, R. F.: Incidence of trichomonas vaginalis in marital partners. Brit. J. Vener. Dis., **36**:163-166, (Sept.) 1960.
8. King, A. J.: Metronidazole in treatment of trichomonal infections. Practitioner, **185**:808-812, (Dec.) 1960.
9. Durel, P., Roiron, V., Siboulet, A., and Borel, L. J.: Systemic treatment of human trichomoniasis with derivative of nitro-imidazole, 8823 R.P. Brit. J. Vener. Dis., **36**:21-26, (Mar.) 1960.
10. Rock, J., Garcia, C. R., and Pincus, G.: Use of some progestational 19-nor steroids in gynecology. Am. J. Obst. & Gynec., **79**:758-767, (Apr.) 1960.
11. Goldzieher, J. W., Moses, L. E., and Ellis, L. T.: Study of norethindrone in contraception. J.A.M.A., **180**:359-361, (May 5) 1962.
12. Cook, H. H., Gamble, C. F., and Satterthwaite, A. P.: Oral contraception by norethynodrel; 3 year field study. Am. J. Obst. & Gynec., **82**:437-445, (Aug.) 1961.

Medicolegal Symposium in Miami Beach

The Legal and Socioeconomic Division of the AMA is planning to hold a Medicolegal Symposium at the Americana Hotel in Miami Beach, Florida, on Friday and Saturday, March 8 and 9, 1963. All interested physicians are urged to mark those dates on their calendars.

During each year since 1955, the AMA has held three such meetings in various sections of the country, but next year the Miami Beach gathering will be the only one of its sort. It is hoped that the attendance may reach 850 or 1,000, evenly divided between physicians and attorneys.

Names of speakers and their topics, and some details about advance registration will appear in a future issue of the JOURNAL.

Management of Peripheral Vascular Disorders

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Only in recent years has interest been aroused in the specialty of peripheral vascular disorders. With this change in attitude, attempts have been made to elucidate the mechanisms responsible for various such conditions, and to formulate a proper therapeutic approach to them. The present paper is to deal with the medical and surgical management of occlusive arterial vascular disorders.

Since arterial obliterative disease of the lower extremities primarily affects people in middle and late life, it can be anticipated that the patients with arteriosclerosis obliterans will become increasingly numerous in this era characterized by an aging population, unless the formation of atherosclerosis can be controlled or prevented. Furthermore, the progressive lengthening of the life expectancy of the diabetic individual, through the use of medication and diet, will also contribute to this situation.

Before discussing the management of the extremity with an impaired arterial circulation, it is necessary for me first to present the available evidence regarding the natural course of arteriosclerosis obliterans, which, as generally accepted, is a progressive disorder. Of interest in this regard is the study by Schadt and his associates[1] in which 422 untreated patients with this difficulty were observed over a period of nine years. Of those individuals suffering from this disease alone, only seven per cent required amputation of any portion of an extremity. In patients with both arteriosclerosis obliterans and diabetes, however, ischemic ulcers, with or without gangrene, developed in 52 per cent, and 27 per cent of the whole series required amputation of either one or both legs.

Since comparable results have been noted in other studies,[2] it can be stated that in the patient with arteriosclerotic disease of the femoral artery, uncomplicated by diabetes mellitus, the outlook for survival of the involved limbs is excellent. However the coexistence of diabetes introduces the possibility of a relatively high incidence of trophic changes, many of which necessitate amputation. One should review all these points, therefore, when he considers employing any of the various surgical procedures, such as sympathectomy, thromboendarterectomy and the use of artificial grafts.

Dr. Abramson is head of the Department of Physical Medicine and Rehabilitation of the University of Illinois College of Medicine, and he made this presentation at a meeting of the Scott County Medical Society, in Davenport, on February 6, 1962.

LOCAL CARE OF THE EXTREMITIES

Although some controversy exists regarding the indications for a number of the medical and surgical therapies that are utilized in arteriosclerosis obliterans, there is complete agreement on the need for local care of the involved limbs. Since this aspect of treatment must primarily be the responsibility of the patient, it is necessary for the physician to explain in detail the reasons for the various steps outlined in the treatment program. In this regard, a printed or mimeographed list of directions (Table I) may help remind the patient of his role in the treatment program.[3]

Protection of the feet from noxious stimuli and trauma is of paramount importance. The lower extremities should be kept warm during the winter months, through the use of woolen socks and full-length woolen drawers. Also, the patient should wear shoes with warm linings of wool or synthetic material, or he should cover his shoes with galoshes.

Shoes should be made of soft leather and should be adequately contoured to avoid pressure areas. If deformities exist, it may be necessary to have the shoes custom made. The patient should seriously consider changing his occupation if there is any possibility of his sustaining injury to the limbs during the course of daily physical activity. In some instances, protective shoes, reinforced with metal coverings on the tips, may be necessary in order to prevent injury to the toes.

The extremity should be washed at least once daily with lukewarm water and a bland, non-alkaline, non-medicated soap. Afterward, an alcohol compound or mild astringent should be applied, in order to toughen the skin, and a lubricating substance, such as lanolin or other oil-base substances, should be used to keep skin texture intact.

If a fungus infection is present, the feet should

be soaked in potassium permanganate for 20 minutes each day, and then a fungicidal dusting powder should be placed between the toes and in the shoes.

Ingrowing toenails, corns, callouses and bunions should be treated only by a physician or chiropodist who is acquainted with the fact that a significantly reduced circulation exists. Surgical therapy for these conditions should be utilized as infrequently as possible, since there is always the possibility that a minor procedure may lead to ulceration and gangrene.

The patient should be made aware of the great danger of applying heat in any form to the involved limbs, since it may precipitate ulcers and gangrene. The physician, too, should never use direct heat in any form in the treatment of inflammation superimposed upon an ischemic ulcer or gangrene. Even strong antiseptic solutions may result in skin burns.

TABLE 1.*

GENERAL DIRECTIONS FOR HOME CARE OF THE FEET

1. Wash feet each night with face soap and warm water.
2. Dry feet with a clean soft rag without rubbing the skin. Dry carefully between the toes.
3. Always keep your feet warm. Use woolen socks or wool-lined shoes in the winter, and white cotton socks in warm weather. Use a clean pair of socks each day.
4. Use loose-fitting bed socks.
5. Never apply hot water bottles, electric heater or any other form of mechanical heating devices to your feet or legs.
6. Wear properly fitting shoes and be particularly careful that they are not too tight. Use shoes made of soft leather.
7. Cut your toe-nails only in a very good light and only after your feet have been soaked in warm water and cleansed thoroughly. Cut the toe-nails straight across. Do not cut down in the corners of the nails. If your feet are taken care of by a chiropodist, be sure to tell him about your difficulties.
8. Do not cut your corns or callouses. Never use corn plasters or corn medicine.
9. Take pressure of shoe off corns, bunions or callouses, using pads or larger shoes.
10. Do not wear circular garters.
11. Do not sit with your legs crossed.
12. Do not use strong antiseptic drugs on your feet, particularly tincture of iodine, Lysol, or carbolic acid.
13. Seek medical care at the first signs of a blister, infection of the toes, ingrowing toe-nails, or trouble with bunions, corns, or callouses.
14. Eat plenty of green vegetables and fruit in an otherwise well-balanced, liberal diet, UNLESS you have been ordered to follow some SPECIAL DIET.
15. Do not use tobacco in any form.
16. Have some member of your family examine your feet at least once each week to see if any blisters, sores or other wounds have appeared.
17. Avoid getting athlete's foot. If present, be very careful how you treat it. See your doctor for advice on the matter. It must not be neglected.

* Modified from D. I. Abramson DIAGNOSIS AND TREATMENT OF PERIPHERAL VASCULAR DISORDERS. New York, Paul B. Hoeber, p. 198.

PHYSICAL ACTIVITY

The patient with intermittent claudication would like to know how much exercise he should do. As a general rule, he should be advised to learn the limit of effort that he can exert without producing symptoms, and then stay within it. However, there is no objection to the use of graded exercises to the point of producing pain, in the hope that this will cause an especially rapid growth of collateral vessels. In discussing the matter with the patient, one should stress that intermittent claudication produces no serious consequences and that it acts only as a deterrent to normal walking. At no time should he be encouraged to refrain from exercise, since sedentary habits lead to disuse atrophy of the muscles of the lower extremities and to a further impairment of walking ability.

If the patient has difficulties in carrying out his daily activities because he has to stop frequently, he should attempt to make certain simple adjustments in view of his disability, such as reducing his usual pace, using a cane to decrease the weight he places on the involved extremity, and walking stiff-legged.

ABSTINENCE FROM SMOKING

Tobacco smoking causes constriction of cutaneous vessels, and hence it is advisable for the patient with arteriosclerosis obliterans to abstain from this habit in order to maintain his cutaneous circulation at the highest possible level of efficiency. However, smoking seems not to hasten the progress of arteriosclerosis obliterans, though it does have such an effect upon thromboangiitis obliterans.

MEDICAL THERAPY

Although none of the medications recently proposed for peripheral vascular disorders can be said to satisfy fully the criteria for the ideal therapy, nevertheless some do represent advances.

Vasodilator Drugs. The efficacy of administering vasodilating drugs by the oral route is a controversial subject. The one main objection to this type of administration is that the medication may produce generalized and even dangerous dilatation throughout the body, and as a result, there may be a drop in blood pressure and hence a reduced blood flow through partially-occluded vessels that are incapable of dilating.

Most of the vasodilating drugs such as Dibenzyline, Priscoline, Ilidar, Inversine, Vasodilan, and Hydergine are sympathetic blocking agents. They will generally cause transient dilatation of cutaneous arteries.

Blocking agents are of no value in affecting in-

termittent claudication, since they do not produce an increase in muscle circulation. Furthermore, inasmuch as there is only a temporary augmentation in cutaneous blood flow, such a response is generally not considered of enough value to warrant the use of the drugs in the chronic occlusive arterial vascular diseases that demonstrate no trophic changes.

In the presence of ulceration or a localized gangrene, vasodilating drugs may theoretically be of aid in healing the lesion or delimiting it. However, even under such circumstances they are of doubtful benefit.

Among the drugs used for increasing the patient's ability to walk are Arlidin—the clinical performance of which has been unimpressive—and the deproteinated, insulin-free pancreatic extract Depropanex. Depropanex appears to increase claudication distance in about 60 per cent of patients with arteriosclerosis obliterans, but the change occurs only after four to six weeks of treatment.

Anticoagulants. There is sufficient clinical evidence to support the view that anticoagulants play a definite role in the treatment of peripheral vascular disorders.

During the acute phase of arterial embolism, the use of rapid-acting anticoagulants, like heparin, is indicated since they may help prevent propagation of the clotting process into the proximal and distal portions of the involved artery, as well as into collateral vessels. Such an approach can be utilized regardless of whether or not embolectomy is contemplated.

After the acute episode of arterial embolism has been controlled, a question arises as to whether or not anticoagulants should be continued as a means of preventing a repetition of the attack. If the mechanism responsible for the first occlusion still operates, it can be expected that new thrombi will be liberated into the blood stream, with perhaps disastrous results this time, from occlusion of arteries in such vital sites as the brain or abdominal viscera. It would appear advisable, therefore, to deal with the problems through the continued use of long-acting anticoagulants, in order to minimize the growth of new thrombi at the original source.

In the case of sudden occlusion of a partially thrombosed vessel due to the growth of a clot, it is generally advisable to use rapid-acting anticoagulants, at least during the acute stage of the process. It is a moot question whether or not long-range anticoagulant therapy should then be instituted and maintained indefinitely, to prevent thrombosis of other vessels.

In the presence of sudden, acute arterial spasm, the use of a rapid-acting anticoagulant like heparin is definitely indicated, since it may help prevent subsequent thrombosis of the vessel.

Drugs Inhibiting Cholesterol Biosynthesis or Reducing Blood Lipid Level. A number of substances have been given clinical trial because of their presumed ability to inhibit cholesterol biosynthesis. Some do this at a late stage in the production of cholesterol, and hence do not interfere with the building of other vital substances which need earlier intermediates for their synthesis. The result of the use of such drugs has been reported to be a reduction of both circulation and miscible-pool or tissue cholesterol. Before we accept the premise implicit in the results that have thus far been published, much more work will have to be done in the field.

Besides its anticoagulant action, heparin also appears to have some effect on reducing hyperlipemia. Its use results in a decrease in the proportion of low-density lipoproteins in the blood (substances presumably associated with the production of atherosclerosis) and an increase in the normal high-density lipoproteins. The value of the drug in this regard has not been settled, and continued work in the field is indicated.

Fibrinolysin. A new approach to the treatment of intravascular occlusion is based upon the concept that thrombi and emboli can be lysed *in vivo* by appropriate fibrinolytic enzymes. Among these is plasminogen, which is a naturally occurring, inactive precusor of a proteolytic enzyme, plasmin or fibrinolysin. The ideal and most rapid mechanism for clot dissolution involves the activation of plasminogen to plasmin within the interstices of the thrombus itself. This activation of clot-plasminogen is mediated by a plasminogen activator, which diffuses from the circulating plasma into the thrombus.

Although theoretically there appears to be some place for plasmin in the therapy of intravascular clotting, the two plasmin-containing products which have received greatest clinical application, Actase and Thrombolysin, have been found to contain insufficient quantities of this substance to produce any significant thrombolytic activity *in vivo.* Other limitations to the medication are that it must be given soon after thrombosis and that it is very expensive to administer in large enough quantities.

According to the literature, some investigators think that fibrinolysin produces some improvement in cases of peripheral arterial thrombosis. However, much more experimental and clinical work will have to be done before this belief receives universal acceptance.

Treatment of Trophic Changes. In order to prevent the appearance of ulcers and gangrene, it is necessary not only to protect the limbs from trauma, but also to control those systemic conditions which may result in a fall in blood pressure and hence a reduction in local circulation in the extremities. Among these are atrial fibrillation and numerous premature contractions, congestive heart failure, myocardial infarction, hemorrhage and operative procedures.

In the presence of nutritional changes, it is important to prevent the spread of the gangrenous process to normal tissue and to permit demarcation of non-viable from living structures. When

these goals have been reached, then steps should be taken to facilitate healing of the denuded areas after spontaneous or surgical removal of necrotic material.

Of prime importance in the treatment of trophic changes is control of secondary infection. It is necessary to point out, however, that it is generally difficult to obtain an effective local concentration of the antibacterial agent because of the reduced local circulation. Nevertheless, it is still advisable to utilize this approach.

A point that must be considered is that ischemic tissue walls off infection very poorly, with the result that the exudate tends to burrow deeply. Because of this, one must investigate all crusts and remove them gently, after soaking them in tincture of green soap or potassium permanganate solution, and one must keep sinus tracts open to facilitate drainage. If the process involves only the distal part of the toe, the use of soaks, non-occlusive dressings and gentle debridement of dead tissue, including the nail, may allow the bone to slough eventually, and healing to take place.

In the presence of large quantities of secretions and pus, it is necessary to use daily soaks in order to keep the wound clean and to remove all necrotic tissue. After each soaking, the entire limb should be dried carefully, particularly between the toes. Then an antibacterial ointment may be applied to the lesion, followed by sterile gauze and bandage.

After all necrotic tissue has been removed and infection is controlled, the next step is the topical application of substances which may help accelerate the healing process, such as White's A and D ointment, red blood cell powder (Lyocyte powder) and coal tar products (Daxalan ointment). It is also necessary to decrease the frequency with which the ulcer is cleaned and dressed, since repeated manipulation may cause injury to newly-formed blood vessels, thus inhibiting the rate of epithelization. The question regarding the use of vasodilators at this stage has already been discussed.

SURGICAL THERAPY

Arterial Grafts. Improvement in anesthetic and surgical technics, effective control of infection and the ready availability of compatible blood during the past decade have made possible new surgical procedures for repair of occluded main arteries, in the form of arterial grafts as replacements for the involved segments. In a relatively short period of time, this type of operation has been exposed to extensive clinical trial.

There is general acceptance of the view that an abdominal aortic aneurysm should be treated surgically by excision, followed by replacement of the removed segment with a graft.[4] The reason for prompt action is that the survival period for such a condition is comparatively short, even when it is asymptomatic. Age is not a contraindication to operation, and neither is hypertension, unless it is associated with severe cerebral and vascular complications. Nor does the history of past coronary disturbances justify abstention from surgery. The only definite contraindications are myocardial damage with heart failure, renal involvement with azotemia and a highly precarious general condition.

Similarly, in the case of slow thrombosis of the aortic bifurcation, a grafting procedure is frequently utilized,[4] although the indications for the operation are not so strong as they are in cases of abdominal aneurysm. Nevertheless, a successful result is very gratifying, since it may permit a patient who has had marked impairment of walking ability to resume almost normal physical activity.

Femoral Artery Thrombosis. There is no unanimity of opinion with regard to the applicability of grafts for segmental thrombosis of the femoral artery and its branches. First there is much controversy with regard to the criteria for determining the proper subject for such a procedure, particularly since, as has already been mentioned, the great percentage of patients with arteriosclerosis obliterans uncomplicated by diabetes and hypertension can be expected to have no difficulties, even when the only treatment program involves local care of the feet and other conservative measures. It is obvious that such a prognosis would be difficult to improve upon by means of successful direct arterial surgical procedures.

Some of the patients who would seem to be good candidates for a graft procedure are relatively young people who, although demonstrating a stationary process as determined by clinical means, are unable to conduct their daily business activities because of marked limitation in walking ability. Another group is composed of individuals who are showing a rapid reduction in walking ability. If such a change occurs early in the disease, it should be observed carefully before one considers any surgical therapy, because it may then be followed by a stationary period. On the other hand, the process may continue to advance at a fast rate, so that claudication distance becomes very short soon after the onset of the difficulty. The patient with such a history should be considered as requiring further work-up, with surgery a definite possibility. The presence of rest pain indicates the existence of a marked impairment of circulation, and hence a patient with such a symptom should be considered as a possible candidate for a graft procedure.

The next step in determining a suitable candidate for a graft is to subject the patient to further studies such as aortography or arteriography. These procedures are helpful in determining the size of the vessel involved and the site of the primary occlusion, as well as the existence of other obstructions in the arteries that supply the limb. Also of great importance are visualizing the vessel above and below the site of the primary occlusion and determining the state of the collateral circulation.

In a case of occlusion of the common femoral

artery, a graft may be successful, provided, of course, that there are a segmental thrombosis and a patent terminal distributional system (adequate "run off"). The patient with extensive disease of the arteries and of the vascular bed beyond the site of obstruction is not a candidate for a graft.

In the case of a block in the superficial femoral artery, the popliteal, or the vessels in the leg, the use of a graft does not carry with it a long-range possibility of success, particularly if it is necessary to use a long segment of prosthesis.

In deciding whether or not a graft procedure should be done, one should also consider the various complications of the operation and the long-range outcome. Among the early complications that are possible are leaks developing in the graft, with death from hemorrhage. If thrombosis of the graft occurs soon after the operation, gangrene may follow, probably because important collaterals in the vicinity of the anastomosis have been destroyed during the operation. Furthermore, there may be propagation of the thrombus in the prosthesis into previously open vessels. If infection takes place in the occluded graft, there may be retroperitoneal spread, with erosion of the prosthesis and even fatal massive hemorrhage. Finally, the operation is not without risk, since there is always a small mortality associated with it.

One discouraging feature of grafting in cases of peripheral arteriosclerosis obliterans has been the relatively high incidence of late thrombosis due to development of plaques in the artery proximal to the graft. It is possible that trauma to the sclerotic vessel during the course of the operation produces acceleration of the atheromatous process.

It is necessary to point out, too, that if a graft is present and functioning for some time and then occludes, the situation is similar to the sudden obstruction of a main artery, and there is a possibility of gangrene of the distal portion of the extremity. Evidently the lack of chronic anoxia, resulting from an increase in blood flow to the limb through the graft, decreases the rate of formation of collateral arteries.

It would appear, therefore, that sufficient time has not yet passed to permit our coming to any definite conclusion as to whether or not this procedure increases the life expectancy of limbs. The one serious objection to surgical approaches of this sort is that they in no way affect the progress of the arteriosclerotic process.

Thromboendarterectomy. The technic of thromboendarterectomy has been used for many years, although since the advent of grafts, it has assumed less importance as a means of reestablishing circulation in large vessels in which segmental thrombosis exists. The procedure consists of the development of a cleavage plane between the diseased intima with the attached intraluminar thrombus, and the medial and adventitial layers of the arteries. The external elastic lamina is left intact, the material being reamed out by means of some type of stripper.

Thromboendarterectomy has a limited application in the treatment of arterial occlusion in the lower extremities. Where a small block has occurred in the lower abdominal aorta or the iliofemoral artery, it certainly is to be preferred to a graft. The presence of calcification of the vessel, however, is a contraindication to the operation. Utilization of the procedure for a long stretch of occluded artery is probably not indicated in most instances. When used in femoro-popliteal occlusion, the method is much less successful than in wide-caliber vessels, and re-thrombosis is likely to occur. It is necessary to point out that thromboendarterectomy is not used for opening up arterial branches, but only for main arteries.

Sympathectomy. Theoretically, sympathetic denervation of the limb through ganglionectomy appears to be based on sound physiologic principles. By such a means it is possible to confine the release of the vasoconstrictor tone to the limb that is in need of a greater local circulation, while vasomotor control over the rest of the body is not altered. As a consequence, one avoids the undesirable drop in blood pressure which, as has already been mentioned, may follow medically-induced extensive sympathetic denervation. However, there are other factors which must be considered in a full evaluation of the operation, such as whether the duration of the increased circulation is temporary or permanent, and whether all or only certain ones of the vascular beds in the limbs are affected by the procedure.

Although there is no question that sympathectomy is followed by an increase in blood flow through the denervated limb, blood flow studies have revealed that most of this type of change persists for no more than several weeks, although a slight increase may last for years. Furthermore it has been noted through extensive physiologic investigation that the augmentation in blood flow is limited to the skin of the hands and feet and, to a lesser extent, the skin of the forearms and legs. There is little support for the view that a similar change occurs in the arteries of the muscles, the portion of the peripheral vascular tree most frequently affected in arteriosclerosis obliterans.

On the basis of the above statements, it would appear that in occlusive arterial vascular disorders, sympathectomy might be helpful in the treatment of cutaneous trophic changes, provided the blood vessels in the skin were capable of dilating. On the other hand, it is difficult to justify the use of sympathectomy in those patients in whom the only symptom is uncomplicated intermittent claudication, a symptom complex which indicates that there is an inadequate muscle circulation during periods of work.

The question arises as to whether sympathectomy is worthwhile in the prevention of nutritional disturbances, on the basis that the resulting

improvement in cutaneous circulation would make the limb less vulnerable to infection and trauma. However, there is no clear-cut extensive and long-range clinical study available in patients with arteriosclerosis obliterans to indicate that there is a statistically significant reduction in the incidence of trophic changes in sympathectomized extremities, as compared with a similar group of non-operated patients.

REFERENCES

1. Schadt, D. C., Hines, E. A., Jr., Juergens, J. L., and Barker, N. W.: Chronic atherosclerotic occlusion of femoral artery. J.A.M.A., **175**:937-940, (Mar. 18) 1961.
2. Silbert, S., and Zazeela, H.: Prognosis in arteriosclerotic peripheral vascular disease. J.A.M.A., **166**:1816-1821, (Apr. 12) 1958.
3. Abramson, D. I.: Diagnosis and Treatment of Peripheral Vascular Disorders. New York, Paul B. Hoeber, 1956, p. 195.
4. DeBakey, M. E., Cooley, D. A., and Creech, O., Jr.: Treatment of aneurysms and occlusive disease of aorta by resection; analysis of 87 cases. J.A.M.A., **157**:203-208, (Jan. 15) 1955.

Use of Exercise Tolerance Test In Cardiac Disease

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VICTOR BOLIE, Ph.D.
Ames

SINCE 1959, we have been studying the responses of both normal subjects and individuals with heart disease to the stress of exercise on a treadmill. We have felt that evaluation of heart function based entirely upon history and examination of the patient under usual conditions is frequently inadequate. We have also agreed with other research workers that much more needs to be known about the response of the circulation to various levels of exercise.

The advantages of evaluation of the exercising patient are several. It may be possible by means of such observation to differentiate between symptoms which are due to heart disease and those which arise from other causes. It is also possible at times to evaluate the severity of heart disease when it is known to be present. This, in turn, makes possible more accurate decisions about the need for heart surgery, continuation of change in medical therapy, and capacity of the individual for various levels of activity.

Our first summary of the study of normal subjects has established a level of reference that we are currently using in evaluating individuals thought to have heart disease. The data already derived were confined to 494 normal subjects between the ages of 40 and 80. In the present paper, we should like to use specific case summaries as a means of demonstrating some advantages in exercise-response measurements. These have clinical references which will be obvious in each instance.

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CASE STUDIES

Case 1., Mr. C. A., Age 41. The patient was first seen at the Iowa Methodist Hospital on March 21, 1957, at which time a diagnosis of ventricular sep-

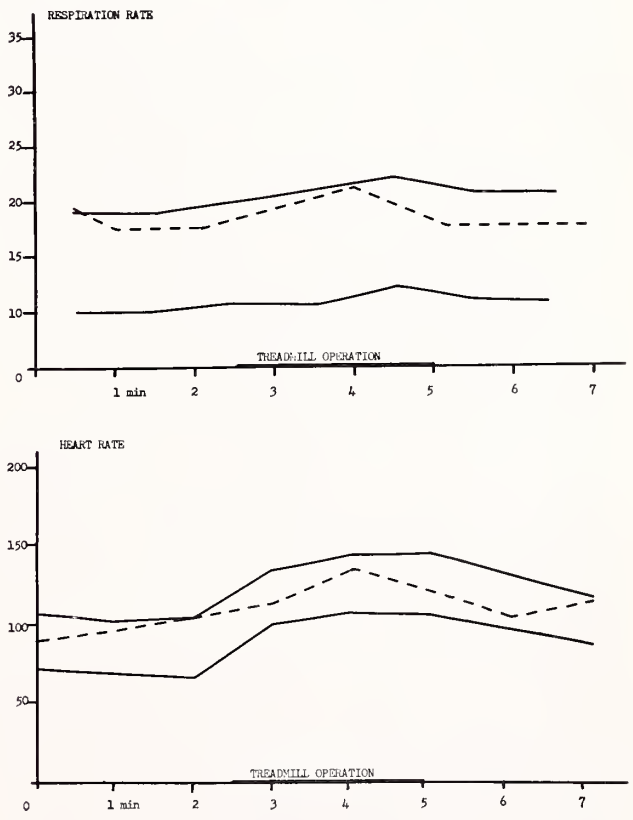

Figure 1. Patient C. A. The chart shows the normal response to exercise as manifested by the respiration rate and heart rate.

tal defect was established. His age at that time was 37 years, and corrective surgery was carried out by Dr. William Myerly in May, 1957. Prior to surgery, the patient was partially incapacitated with dyspnea and marked fatigue. He weighed 125 pounds, was 6 ft. 1 in. tall, and was showing evidence of progressive circulatory deterioration. The operation was successful despite some extremely severe postoperative complications.

The patient has continued to have anxiety about his cardiac status, despite a gain of weight to his present level of 170 pounds, and a marked improvement in his capacity to work and to resist various minor illnesses such as upper-respiratory infections. He still has a loud systolic murmur, which can be heard well into the axilla and is especially prominent in the 4th and 5th left interspace near the sternum.

The exercise test was carried out to evaluate his performance compared with normal subjects, both for his own assurance and in order to evaluate the degree of success achieved in the surgery. The response compared with the normal is demonstrated in the accompanying graph (Figure 1). A satisfactory circulatory performance is indicated, and no need is shown for any repeat cardiac catheterization, change in therapy, or limitation of work activity.

Case 2., Mrs. M. B., Age 28. The patient has rheumatic heart disease, with mitral insufficiency and aortic insufficiency. Despite a markedly enlarged heart, she has been fairly well compensated and has not had to give up any but the heaviest household activities. On one previous occasion, she had experienced paroxysmal atrial fibrillation and evidence of congestive failure. Quinidine was effective, at the time, but there was evidence suggesting that she was sensitive to the drug. When atrial fibrillation occurred again, it was felt that it would be more prudent to digitalize the patient and avoid using quinidine because of the question of sensitivity. She showed rather limited improvement. Exercise on the treadmill after digitalization revealed that the ventricular rate rose to extremely high levels, as demonstrated on the accompanying graph (Figure 2). For that reason, quinidine was again attempted very cautiously, and was tolerated well enough so that conversion to a sinus rhythm was possible. The accompanying graphs show the marked improvement which occurred on the second exercise test, with the sinus rhythm reestablished. She has returned to her usual activities.

Case 3., Dr. T. A. B., Age 80. An 80-year-old physician who had been known to have coronary disease with evidence of myocardial damage, but without evidence of decompensation, had been taking no medicine and getting along well. Very frequently, when he attempted to go for a walk, however, he became so faint he had to sit on the curb or any other available place for a few minutes in order to avoid collapse. On examination, he had revealed no abnormality which would explain this behavior. Treadmill exercise showed a fairly satisfactory response, but the continuous recording of the electrocardiogram revealed paroxysmal ventricular tachycardia which gave evidence suggesting that this type of rhythm-disturbance was responsible for a drop in blood pressure and the sensation of impending faintness, thus interfering with the patient's normal activities. When his physician had more specific knowledge of the problem, he was able to alter treatment.

Case 4., Mr. R. J. D., Age 36. This 36-year-old patient was known to have had a myocardial infarction six months previously. He was seen at the request of the insurance company which was responsible for protecting him against prolonged disability as a consequence of this illness. The patient was anxious to return to work, and at the end of six months was working part time in a cleaning establishment where he had been previously employed.

Exercise on the treadmill revealed a change in rhythm which occurred only with activity. This was characterized by a marked bradycardia, promptly followed by bigeminal rhythm with no symptoms occurring during the arrhythmia or subsequently. It was our impression that this represented a potentially serious or even disastrous disturbance in cardiac rhythm in the post-infarction phase, and we cautioned against rapid return to physical activity.

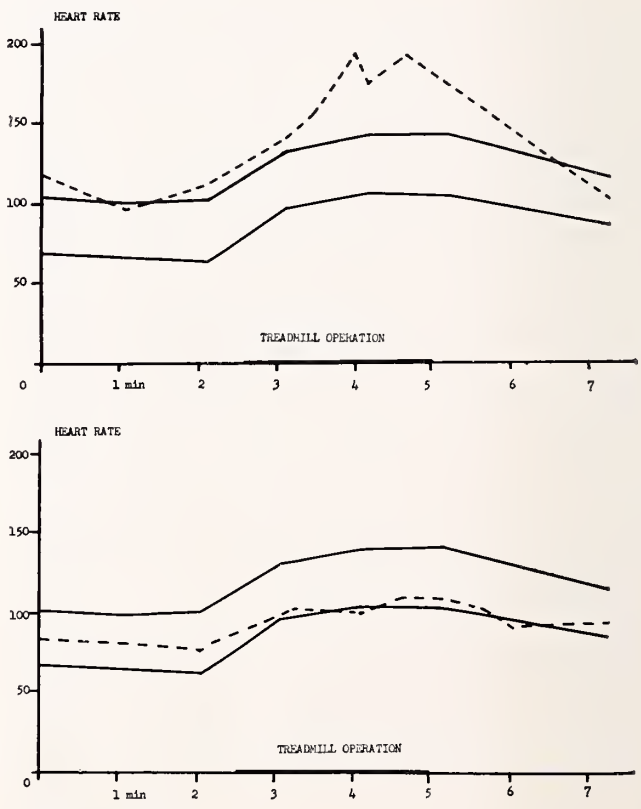

Figure 2. Patient M. B. The graph on top shows a rapid heart rate while fibrillating. The graph on the bottom shows a normal heart rate response after conversion to sinus rhythm.

Case 5., Mrs. H. P., Age 46. The patient was referred for consideration of mitral commissurotomy. She had been living in Colorado, where the altitude was about 7,000 feet and where she had been experiencing marked fatigue. When she returned here, a diagnosis of mitral stenosis was confirmed, but the patient felt considerably improved after a few weeks at Iowa altitudes. Nevertheless, her family was deeply concerned about her and wanted to be sure that surgery had not been overlooked to her detriment.

For a better evaluation of the patient's status and progress, serial treadmill exercise tests are being carried out. The first two of them, done one year apart, are demonstrated in Figure 3. They indicate that the patient has remained within normal limits, and that there has been little or no change in her response over that period of time. This type of serial exercise will be repeated, and surgery will not be considered unless there is a definite change in her response or unless other complications occur.

Case 6., Mr. V. M., Age 61. The attending physician referred this patient as a result of concern about his weakness and lack of response to therapy. The patient had been forced to give up his work on the railroad because of these symptoms, and it was thought that further information was needed. The patient performed the exercise without difficulty, but the accompanying graphs (Figure 4) indicate a marked failure of blood pressure to rise in response to exercise and, indeed, demonstrate an actual drop of blood pressure with exercise. This is in complete contradistinction to the physiologic response, and is a type of change which is not seen in any normal subject. We were able to report to the patient's doctor that he had a clear-cut abnormality involving pressor response to effort, and that further investigation would be of considerable value in establishing successful therapy.

DISCUSSION

It is our impression that the use of this type of test will be most effective when we are able to apply it to individual patients with specific diagnostic or therapeutic problems. There is often a tendency to use the kind of data we have derived in establishing an arbitrary index of performances. We have felt that the patient can be studied more satisfactorily when the individual response factors are examined separately and are used to supplement other clinical data for a final decision. We have been especially impressed with the disparity

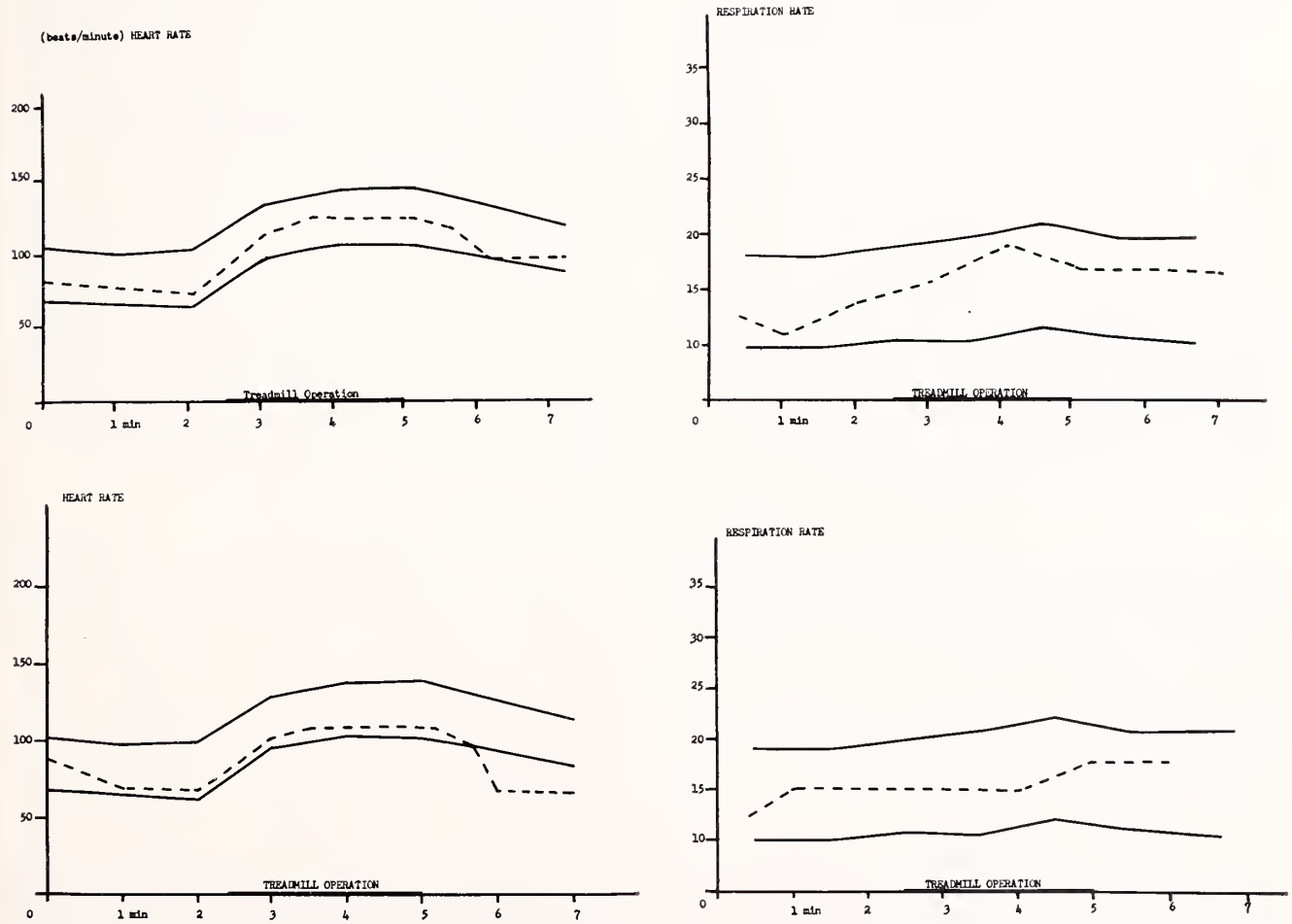

Figure 3. Patient H. P. The two upper graphs were recorded one year before the lower graphs. Respiration rate and heart rate showed similar response to exercise.

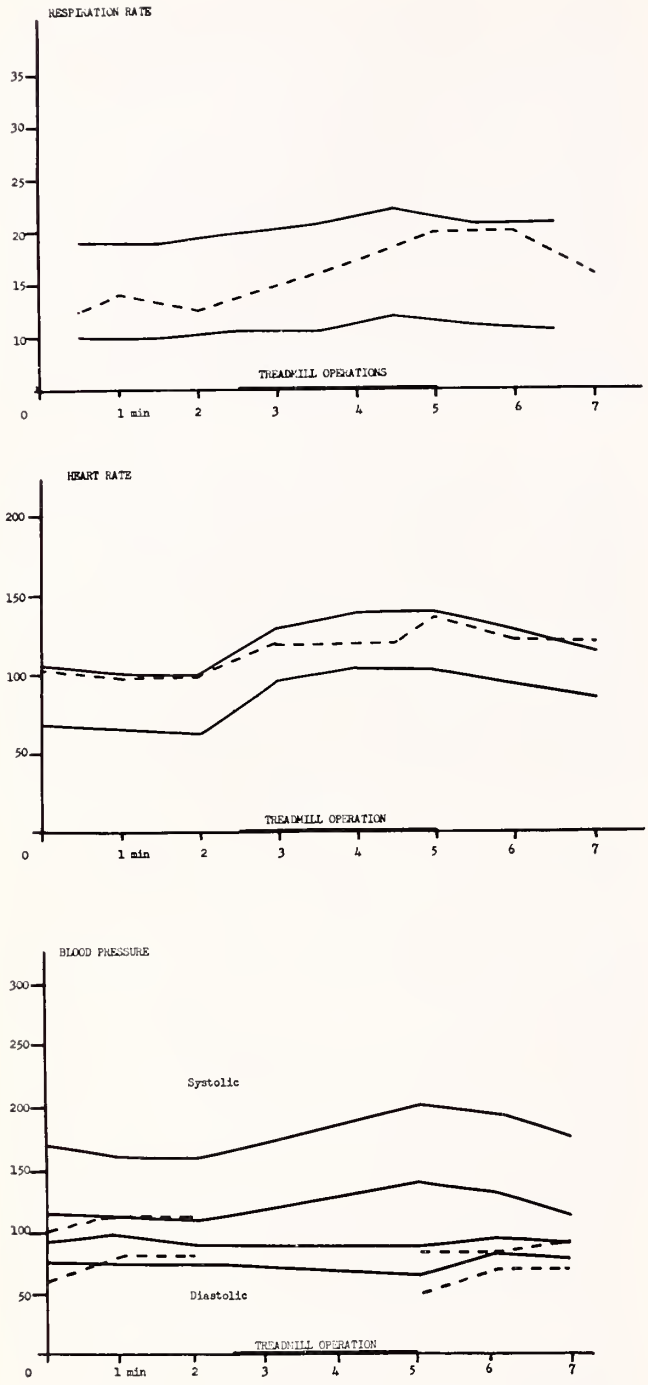

Figure 4. Patient V. M. The two upper graphs show normal respiratory curve and normal heart rate response to exercise. The lower graph shows a decrease in blood pressure after exercise. The dotted lines show systolic and diastolic pressures.

between symptoms and findings, and thus far have gained the impression that there may be as many patients too eager to be active as there are patients unwilling to return to work.

SUMMARY

Six cases have been presented illustrating the use of exercise-tolerance studies in clinical evaluation of patients.

REFERENCES

1. Mitchell, J. H., *et al.*: Physiological meaning of maximal oxygen intake test. J. Clin. Invest., **37**:538-547, (Apr.) 1958.
2. Freiman, A. H., *et al.*: Electrocardiogram during exercise. Am. J. Cardiol. **5**:506-515, (Apr.) 1960.
3. Nisell, O.: Respiratory work and pressure during exercise, and their relation to dyspnea. Acta Med. Scandinav. **166**:113-119, (Feb. 17) 1960.
4. Bruce, R. A.: Evaluation of conditioned capacity and exercise tolerance of cardiac patients. Modern Concept of Cardiovascular Disease, **25**:321-326, (Apr.) 1956.
5. Mitchell, J. H., Sproule, B. J., and Chapman, C. B. C.: Factors influencing respiration during heavy exercise. J. Clin. Invest. **37**:1693-1701, (Dec.) 1958.
6. Wyndham, C. H., *et al.*: Maximum oxygen intake and maximum heart rate during strenuous work. J. Appl. Physiol., **14**:927-936, (Nov.) 1959.
7. Braunwald, E., and Kelly, E.R.: Effects of exercise on central blood volume in man. J. Clin. Invest. **39**:413-419, (Feb.) 1960.
8. Donald, K. W., *et al.*: Effect of exercise on cardiac output and circulatory dynamics of normal subjects. Clin. Sci., **14**:37-73, (Feb.) 1955.
9. Bruce, R. A., *et al.*: Exertional hypotension in cardiac patients. Circulation, **19**:543-551, (Apr.) 1959.
10. Logan, G. A., *et al.*: Disability two to five years after mitral cimmissurotomy: evaluation by clinical criteria and exercise tolerance. Ann. Int. Med., **47**:248-262, (Aug.) 1957.
11. Bruce, R. A.: Evaluation of functional capacity in patients with cardiovascular disease. Geriatrics, **12**:317-328, (May) 1957.
12. Bruce, R. A.: Measurement of cardiac efficiency. Am. Heart J., **57**:161-165, (Feb.) 1959.
13. Logan, G. A., and Bruce, R. A.: Atypical pressor responses to upright posture and exercise in patients with mitral or aortic stenosis. Am. J. Med. Sc., **236**:168-174, (Aug.) 1958.

Rehabilitation of the Disabled

Anthony J. Celebrezze, Secretary of Health, Education and Welfare, released on September 10 a state-by-state breakdown of the numbers of disabled people rehabilitated to productive and satisfying lives through the state-federal partnership program of vocational rehabilitation during the fiscal year that ended on June 30, 1962.

Pennsylvania led all states with a record 9,311 rehabilitations and a 44 per cent increase over the previous year. The national total of 102,378, in 1962, was an all-time high, and the first time the national total has reached 100,000 in the 42-year history of the program. In the number of rehabilitations per 100,000 of population, West Virginia ranked first with 201, against a national average of 55. Georgia was second with 153; Arkansas third with 139; and North Carolina fourth with 132.

The figures for Iowa and contiguous states are as follows:

State	Numbers Rehabilitated Fiscal Year 1961	1962	Per Cent of Change	Rehabilitations Per 100,000 Population Number	Rank*
Illinois	3,926	3,879	+ 1	38	39
Iowa	1,343	1,278	+ 5	48	27
Minnesota	1,476	1,410	+ 5	42	35
Missouri	2,117	1,767	+20	48	27
Nebraska	691	635	+ 9	48	27
South Dakota	303	277	+ 9	44	32
Wisconsin	1,864	1,577	+18	46	30

* The rank shown is on the basis of 54 states and territories. As is obvious above, there were some ties; thus the ranking of twenty-seventh for Iowa, Missouri and Nebraska means that 26 of the 54 governmental units rehabilitated more persons per 100,000 of population than did any of those three states.

Evaluation of Renovist As a Urographic Medium

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A COMPARATIVE STUDY of various pyelographic media was completed at the University Hospitals, and the results were published in the October, 1957, issue of the JOURNAL OF UROLOGY.* Since then, other media have become available. The most recent one to be tested was Renovist.

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* Culp, D. A., Van Epps., E. F., and Edwards, C. M.: Comparative studies of urographic media. J. UROLOGY, 78:493-495, (Oct.) 1957.

A program of study was instituted, which was similar to the previous investigation. Excretory urograms were obtained in 500 patients without previous preparation of the patient, such as cleansing enemas or fluid restriction. All patients were questioned in regard to previous allergic history, and were specifically asked about previous responses to injected urographic substances. If no allergic history was obtained, 0.5 cc. of Renovist was injected into an antecubital vein. The remainder of the 25 cc. of Renovist was injected over a 3 minute period if no reaction had occurred within one minute. When symptoms of sensitivity were elicited, an intracutaneous test was performed. If the skin test was positive, the patient was considered a poor risk for intravenous injection of an organic iodide, and it was not administered.

A preliminary film of the abdomen was obtained prior to the injection, as well as films at specified intervals of five and fifteen minutes following the injection. If the routine films failed to visualize the urinary tract, additional films were obtained as the individual case dictated.

Each of the patients was observed for reactions to the medium, and the films obtained were studied with regard to their quality, the results being recorded in three categories, good, fair and poor.

Reactions were noted in 32, or 6.4 per cent of the 500 patients studied. Table 1 gives a breakdown of the previously published data with regard to Uro-

TABLE 1

REACTIONS WITH VARIOUS UROGRAPHIC MEDIA

Contrast Medium		Total Number of Patients	Number of Patients With Reactions	Percentage
Renovist		500	32	6.4
Urokon	70%	774	73	9.3
Diodrast	35%	644	39	6.05
Neo-Iopax	50%	179	29	16.2
Miokon	50%	155	76	49.0
Renografin	76%	235	15	6.4
Hypaque	50%	135	22	16.29

TABLE 2

MAJOR REACTIONS WITH VARIOUS UROGRAPHIC MEDIA

Contrast Medium		Number of Patients With Nausea	Vomiting	Vein Cramps	Difficult Breathing	Urticaria	Cardiovascular Collapse	Death
Renovist		23	12	1	4	5	2	0
Urokon	70%	29	24	8	1	9	0	1
Diodrast	35%	32	15	0	0	4	1	0
Neo-Iopax	50%	6	1	24	1	0	1	0
Miokon	50%	20	1	2	0	2	2	0
Renografin	76%	7	4	1	0	1	0	0
Hypaque	50%	17	5	4	1	1	0	0

TABLE 3

MINOR REACTIONS TO VARIOUS UROGRAPHIC MEDIA

Contrast Medium		Number of Patients With Flushing	Metallic or Bitter Taste	Sneezing	Tingling	Itching
Renovist		7	4	0	6	1
Urokon	70%	1	0	1	0	0
Diodrast	35%	1	0	1	0	0
Neo-Iopax	50%	0	0	0	0	0
Miokon	50%	29	27	0	4	1
Renografin	76%	8	2	0	0	0
Hypaque	50%	7	3	0	1	1

TABLE 4

QUALITY OF PYELOGRAMS ACHIEVED WITH VARIOUS UROGRAPHIC MEDIA

Contrast Medium		Results Achieved (Percentages) Good	Fair	Poor
Renovist		87.0	8.6	4.4
Urokon	70%	70.8	24.6	4.4
Diodrast	35%	71.8	19.3	8.7
Neo-Iopax	50%	59.0	21.0	20.0
Miokon	50%	89.0	6.8	4.1
Renografin	76%	82.4	13.4	4.2
Hypaque	50%	84.6	8.1	7.2

kon, Diodrast, Neo-Iopax, Miokon, Renografin, Hypaque and, in addition, the recent studies obtained with Renovist. In this respect, Renovist compared favorably with the Diodrast and Renografin.

The types of major and minor reactions noted with Renovist are presented in Tables 2 and 3, along with a breakdown of the reactions that had been noted in the previous study with other urographic media. The predominant reactions of all of the contrast media, including Renovist, were nausea and vomiting. In one patient receiving Renovist, we administered 1 cc. of 1:1000 Adrenalin to combat hypotension, and gave Benadryl, 25 mg., intramuscularly, for the reactions of flushing, tingling, itching and urticaria.

The films were evaluated by each of the authors and divided into three categories, depending upon how well the urinary tract was outlined. If the urinary system was visualized sufficiently to eliminate the need for retrograde studies, the films were considered good. They were considered fair when the concentration of radiopaque material filled the pelvis and calyces sufficiently to establish a diagnosis, but the density was poorer than that which is seen on retrograde film. If insufficient contrast material was present to establish a diagnosis, the films were considered poor. Twenty-two cases, or 4.4 per cent of the patients, had poor films, and in only three of these cases were the blood urea nitrogen and creatinine within normal limits.

In Table 4, the quality of the pyelograms obtained with Renovist is compared to the quality of the films obtained with other contrast media as previously reported.

Renovist compared favorably to both Diodrast and Renografin, both in the quality of films obtained and in the incidence and severity of reactions.

Des Moines Poison Information Center

Fiscal Report—August 1, 1961, to July 31, 1962

Month	Telephone	Clinic	Hospital	Total
August, 1961	50	25	5	80
September, 1961	34	37	4	75
October, 1961	30	25	8	63
November, 1961	19	26	6	51
December, 1961	26	28	3	57
January, 1962	32	33	8	73
February, 1962	25	22	8	55
March, 1962	31	30	2	63
April, 1962	30	32	11	73
May, 1962	58	25	5	88
June, 1962	38	26	3	67
July, 1962	33	43	3	79
Total	406	352	66	824

Types of Poisons	Cases
Aspirin	158
Medication (other than aspirin)	194
Household Products (soap, cleaner, etc.)	109
Cosmetics	71
Petroleum Products, Fuel, Paint, etc.	72
Pesticides, Insecticides	93
Miscellaneous	127
Total	824

Location	Cases
Des Moines-Polk County Area	648
State (other than Polk County)	171
Out of State	5
Total	824

Age Group	Cases
9 mo.-2 yr.	238
2 yr.-3 yr.	259
3 yr.-4 yr.	148
4 yr.-6 yr.	57
Other	122
Total	824

Physicians	Cases
Iowa Medical Society	664
Iowa Society of Osteo. Physicians	70
Other	90
Total	824

Last fiscal year (August 1, 1960-July 31, 1961) Total—719

Case Studies

A Case of 2-4D Intoxication

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Burlington

Mr. W. H., a 52-year-old white male, was the victim of a rare case of 2-4D weed-killer intoxication, and even though it was treated, he was unable to walk for two years.

The patient had had what he considered to be his usual health until six weeks before I saw him. At that time he had been spraying 2-4D, and got some of the material on his arm. Because he was out in the field, he didn't immediately wash it away or otherwise remove it. Three or four days afterward, he began experiencing nausea, vomiting and diarrhea, which lasted for about 10 days and were accompanied by some loss of weight. He failed to seek medical attention at that time, however.

Subsequently, he exposed himself again to 2-4D, this time getting some of it onto one of his legs. He then had a recurrence of nausea and vomiting, this time vomiting recently-digested food over a period of four or five days. In addition, he noted the onset of a low-grade fever and felt weak. He presented himself to his family physician, and was hospitalized with a diagnosis of secondary anemia. He was given hematinics and injections for that condition, but continued to feel unwell.

For three days before I saw him, the patient had been unable to walk, and in addition had some weakness of his arms, hands and forearms.

His medical history consisted of arthritis of the back, a condition that had been present for 15 years. His surgical history was negative. Physical examination revealed a well developed, well nourished white male, with a blood pressure of 115/60 mm. Hg, and a pulse of 90/min. The results of an examination of the head were negative; as for the eyes, the pupils were round and regular, they reacted to light and accommodation, and the fundi were clear. An examination of the nose was negative. The mouth and tongue were clear. The throat revealed an injected posterior pharynx, but there was no exudate. The trachea was in the midline of the neck, and there were active carotid pulsations. The breasts plus the axilla were clear, and the lungs were clear to auscultation and percussion. As for the heart, the point of maximum impulse was at the midclavicular line at the fifth interspace, and the sounds were distant but pure. In the abdomen, no organs or masses were palpable. The genitalia were normal male, and the rectal examination was negative. The skin showed no specific lesions, and the extremities showed no clubbing or cyanosis.

In the neurologic examination, the cranial nerves were found to be intact. As for the sensorium, deep muscle pain sensation was absent in both the legs and the arms, bilaterally. Pinpoint sensation was absent in both big toes. Vibratory sensation was absent in both the arms and feet, bilaterally. As regards motor power, there was paralysis of the thigh and leg muscles—gastrocnemius, peroneal muscles, quadriceps hamstrings, adductors, abductors bilaterally, and internal and external rotators of the thigh. There was weakness of the intrinsic muscles of the hands, bilaterally, and of the extensors and flexors of the arms. There was some weakness of the biceps and triceps, bilaterally. The deep tendon reflexes were absent, but the superficial reflexes were present. There were no pathological reflexes.

In the laboratory tests, a urinalysis showed a reaction of 5.5. The hemogram at the time of admission showed a hemoglobin of 9.5 Gm./100 ml., a red blood cell count of 3.6 million and a white blood cell count of 3,250/cu. mm., with 40 per cent segmented polymorphonuclear leukocytes and 15 per cent lymphocytes. There a slight central achromia and a slight anisocytosis. The serum bilirubin was 1.95 mg. per cent. The febrile agglutinations were negative to E THPHI "O," E THPHI "H," SAL PARA (Para A), SAL. PARA (Para B), PROTEUS OX19, and BR. ABORTUS. The reticulocyte count was 1.3 per cent, and the urobilinogen was negative. A spinal tap showed a total protein of 60 mg. per cent, a negative Pandy's and no cells. Serologies were negative on spinal fluid and peripheral blood. The bone marrow was found to be hypoplastic (Figure 1).

A repeat spinal fluid examination, one month later, showed protein 80 mg. per cent and a positive Pandy's. A hemoglobin determination one month later showed 12 Gm./100 ml., and another two months later showed 14 Gm./100 ml. A white blood cell count and differential on the latter occasion were normal.

TREATMENT

The patient was given B.A.L. (dimercaprol), 2 cc. b.i.d., and during his long period of physiotherapy the severe pain in his legs, localized in the posterior portion of the thigh, was treated with the usual sedations—codeine and salicylates—and he was given protamide.

PROGRESS

After approximately six months of active and passive exercises, the patient was able to walk with the help of crutches. He continued his physiotherapy, and at the end of two years he could walk unaided. He had some residual weakness of the peroneal muscles, however, evidenced by an inability to stand on his toes or to hop. Yet, he was able to resume his farm work within a period of two years.

COMMENT

The pharmacologic effects of 2-4D on mammals are not well known, and few unequivocal poisonings by this means have occurred—or at least have been described—in man. A concentration of 10 parts per million of 2-4D stimulates growth in plants, and a concentration of 100 to 1,000 parts per million kills the root systems of plants, through an excessive stimulation of growth. Some investigators have suggested that its mode of action may be through an inhibition or interruption of phosphatase.

Oral administrations of the water-soluble salt have established the lethal doses (LD_{50}) in certain animals: 380 mg./Kg. in mice; 670 mg./Kg. in rats; 800 mg./Kg. in rabbits; and 550 to 1,000 mg./Kg. in guinea pigs. In terms of susceptibility to 2-4D, monkeys appear to be comparable with these animals.

A syndrome of myotonia, stiffness of the extremities, ataxia, lethargy, paralysis and coma may follow the parenteral administration of 2-4D to experimental animals, according to Sollman.[6] One author, Hildebrand,[4] has mentioned that 2-4D is not irritating to the skin.

Chronic poisoning in laboratory animals has produced renal edema and tubular changes. In dogs, some evidence of damage to the liver has been reported by Hill and Carlisle.[5] Bucher[1] noted temporary myotonia, lacrimation, rubbing of the eyes, vomiting and anorexia in dogs, but no evidence of histologic changes. In mice, the same author reported the same reactions, and in addition, diarrhea, sluggishness, reluctance to move, rigidity of the tail, and a coarse clonic tremor. Coma and death occurred in some animals. There were no residual neurologic defects in those that survived.

Three previous cases of polyneuritis have been reported, due to exposure to 2-4D. In the case that I have described, there were polyneuritis and a bone-marrow depression, both transient in character. These four cases, together with the few animal experiments that I have summarized, show that little is known regarding the toxicity of 2-4D in mammals, and even less as to its mode of action.

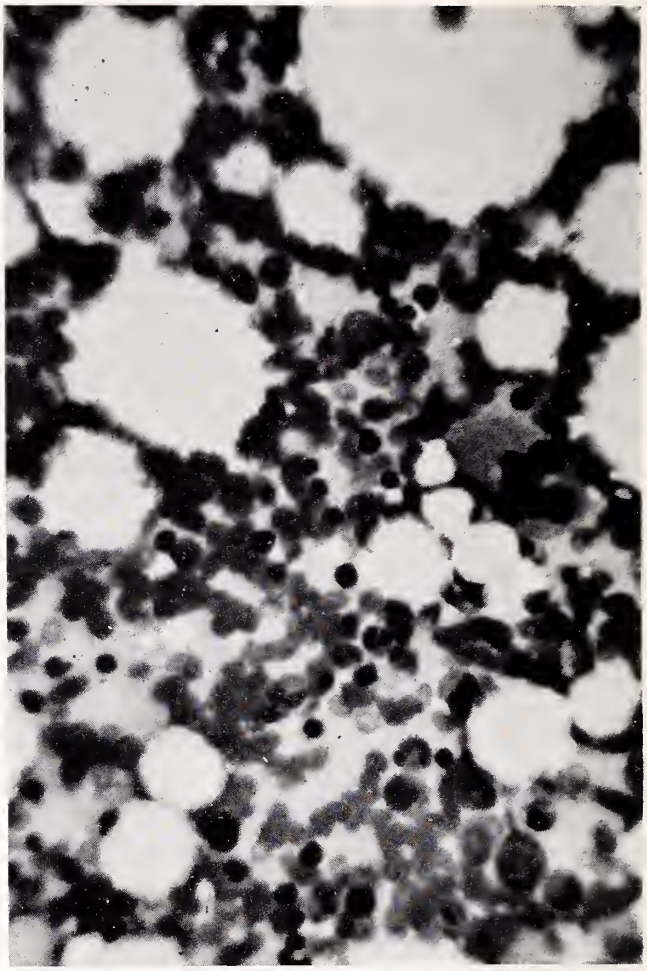


Figure 1. Hypoplastic Bone Marrow. Sternal marrow smears reveal the presence of all elements with a relative reduction in granulocytic elements and reversal of M/E ratio. Megakaryocytes are present but only a few are producing platelets. A platelet count may prove interesting. This picture is compatible with toxic depression of the bone marrow. Peripheral blood smears also show a leukopenia and especially a granulocytopenia.

Obviously, there is no specific therapy in cases of 2-4D intoxication. One can give no more than general supportive therapy.

REFERENCES

1. Bucher, N. L. R.: Effects of 2,4-Dichlorophenoxyacetic acid on experimental animals. Proc. Soc. Exper. Biol. & Med., **63**:204-205, (Oct.) 1946.
2. Gleason, Marion N., Gosselin, Robert E., and Hodge, Harold C.: Clinical Toxicology of Commercial Products. Baltimore, Williams & Wilkins Co., 1957.
3. Goldstein, N. P., Jones, P. H., and Brown, J. R.: Peripheral neuropathy after exposure to ester of dichlorophenoxyacetic acid. J.A.M.A., **171**:1306-1309, (Nov. 7) 1959.
4. Hildebrand, E. M.: War on weeds. Science, **103**:465-468, (Apr. 19) 1946.
5. Hill, E. V., and Carlisle, H.: Toxicity of 2,4-Dichlorophenoxyacetic acid for experimental animals. J. Ind. Hygiene & Toxicol., **29**:85-95, (Mar.) 1947.
6. Sollman, T.: Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, Eighth Edition. Philadelphia, W. B. Saunders & Co., 1957.
7. Woltman, H. W., and Kernohan, J. W.: "Diseases of Peripheral Nerves." In: Clinical Neurology, Vol. III, ed. by A. B. Baker. New York, Paul B. Hoeber, Inc., 1955.

Paraphysial Cyst

JOHN N. KENEFICK, M.D.
Algona

Paraphysial (colloid) cysts of the third ventricle were first described by Wallman, in 1858. In 1933, Dandy reported five cases operated upon, the first successful one in 1921. In 1941, Grossiard reviewed the entire literature on the subject, prior to 1938, listing 79 cases and adding one of his own. Of those, 25 had been diagnosed and operated upon, with 22 cures and three deaths.

The reported cases now total about 110.

The two youngest patients were reported on by Gemperlein, in the January, 1960, issue of the JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY. They were two months and six months of age, respectively, and their symptoms and findings were those of a hydrocephalus. The majority of reported cases have been in young adults, and there has been no greater frequency in one sex than in the other. The durations of symptoms have varied from a few months to several years, but several patients have died suddenly with little or no previous history of symptoms. The outstanding symptom has been severe headache in various locations, often associated with nausea, vomiting and coma, and occasionally with convulsions, disturbance in vision, difficulty in walking, personality changes, and loss of recent memory. There are no consistent physical signs. Skull x-rays may show signs of increased intracranial tension, but ventriculograms are diagnostic in a very high percentage of cases. Eye grounds show blurred discs in a fair number of cases.

The paraphysial cyst arises from the anterior portion of the third ventricle, and is usually pedunculated and moveable. It hangs posterior to the foramen of Munro, and its ball value action, in blocking the foramen, explains the severe headaches. They thus are caused by acute hydrocephalus. It also explains the occasional release of pain with a change of position. The cyst is non-malignant, and it varies in size from 1.5 to 5.0 cm., the largest reported having been 9 cm. in an infant with hydrocephalus. The cyst is thin-walled, having a thick fibrous outer layer and a single layer of low or cuboidal epithelium. It is thought to arise from a fetal remnant in the roof of the third ventricle, persisting from a rudimentary structure which usually disappears by the third month of fetal life. It is present as a well developed structure in certain forms of lower life (glanoids).

CASE REPORT

My patient was a housewife, 24 years of age, who had had ordinary childhood diseases, but none other. She had lived at home until 19 years of age, and her parents had no recollection of her having unusual headaches, disturbances of vision, or anything else of that sort. She had been considered the healthiest child in their family.

The patient's husband recalls her having had no unusual headaches until January, 1962, when she had a headache lasting two or three days, unassociated with other symptoms. She did not consult a doctor at that time.

On February 4, 1962, she spent the afternoon at the home of her parents, and they noticed nothing unusual. That evening, on returning home, she complained of headache and had a restless night. She vomited once around midnight. On the next morning, she assured her husband that she felt well enough to take care of the housework. When he stopped there at 9:00 she still complained of headache, but he noticed nothing unusual in her appearance or behavior, despite the fact that she had vomited again and had fainted on going to the bathroom.

She remained in bed for the rest of the day, and when her husband stopped at the house during the mid-afternoon, she seemed "dopey," but responded to his questions.

I saw her at 5:30 p.m., at which time she felt much better and was sitting up in bed. She seemed alert, and had only a slight headache. Her temperature and pulse were normal. After I left, as I was told afterwards, she soon became much worse, and spent a very restless night. She screamed in her sleep and complained about her head. Toward morning, she was thought to be resting, but soon developed difficulty in breathing and died within a short time, at 7:30 a.m., 36 hours after the onset of her second episode.

AUTOPSY

(By George T. Joyce, M.D., Mason City)

External Appearance. The body was that of an arterially-embalmed 24-year-old white female measuring 63 inches and weighing approximately 110 pounds. The eyes and mouth had been prepared for burial, and consequently could not be examined. The ears and nose showed nothing of note. The thyroid gland was not palpable, and there were no enlarged cervical, axillary and inguinal lymph nodes. The chest was normal in appearance, in its external aspects. Neither breast

contained any masses. The abdomen, external genitalia and extremities were normal in appearance, in their external aspects. Further examination was limited to the contents of the cranial cavity.

Head. The scalp was reflected, and the calvarium removed in the usual manner. There was no evidence of extradural, intradural or subarachnoid hemorrhage. The brain fitted very tightly in the cranial cavity. The cerebral convolutions were markedly fat, and the sulci were markedly narrow. The brain was removed after the usual fashion. It weighed 1,700 grams. Step sections were cut through the cerebral hemispheres. Both lateral ventricles were markedly dilated, and filled with clear cerebrospinal fluid. The ependymal lining of those two ventricles was studded with multiple bright red punctate areas of hemorrhage.

The entire third ventricle was filled with a very thin-walled, unilocular cystic tumor. The wall of that cystic tumor completely occluded the interventricular foramen. The cyst wall was pinkish-grey in color and translucent in character. The cyst was filled with pale-tan, mucoid liquid material. The ependymal lining of the third ventricle also was studded with multiple bright red punctate areas of hemorrhage. The cyst measured $3.5 \times 3 \times 3$ cm. The white and grey matter of the cerebral hemispheres was remarkable in gross appearance. The pons had been displaced downward, and there was a rather deep pressure ridge on its anterior and lateral surfaces, in the midportion of the structure. The medulla and cerebellar hemispheres were unremarkable in gross appearance. The vessels which comprise the circle of Willis were intact and normal in appearance. They showed no evidence of sclerosis. The pituitary gland was normal in appearance. Examination of the bones which comprised the cranial cavity revealed no abnormalities.

MICROSCOPIC DESCRIPTION

Sections including the wall of the third-ventricular cyst showed the structure to have been lined with a single layer of cuboidal to low-columnar epithelial cells, having round, small, darkly-staining nuclei, and rather poorly outlined, pink-staining cytoplasm. Some cells contained round droplets of mucus within their cytoplasm. External to this epithelial lining was a thin, very compact layer of fibrous connective tissue. The cyst contents consisted of mucoid material in which occasional mononuclear cells were scattered. In the adjacent cerebral tissue, there were fairly numerous small petechial hemorrhages surrounding small cerebral vessels in a ring-like fashion. There were also some focal areas of necrosis of the white matter, and focal areas of astrocytic proliferation. Sections from other portions of the cerebral hemispheres were unremarkable, except for the fact that there was a fairly marked degree of edema, with a marked widening of the Virchow-Robin spaces and a loosening of the intercellular substance.

PATHOLOGIC DIAGNOSES

1. Paraphysial cyst of third ventricle, with obstruction of foramen of Munro.
2. Marked internal hydrocephalus, lateral ventricles, secondary to the paraphysial cyst.
3. Cerebral edema, severe.
4. Multiple petechial hemorrhages in the white matter surrounding the lateral ventricles.

SUMMARY

The literature on paraphysial cysts has been reviewed briefly, and the case of a 24-year-old female has been presented. The patient had had no symptoms prior to one month before her final 36-hour episode.

The outstanding symptoms of this condition are severe headaches. Ventriculograms are highly diagnostic, and surgery has been successful in a good percentage of cases. Sudden death is quite common in patients with this condition.

AMA Committee Urges Boxing Revisions

Revision of point and scoring systems in boxing to place greater emphasis on skill and less on the knockout blow was advocated recently by the AMA's Committee on the Medical Aspects of Sports. Spurred by the recent fatalities and serious injuries that have dramatized the dangers of boxing, the Committee has suggested the following ground rules for boxing safety:

1. Thorough medical examinations prior to all bouts by a physician responsible for determination of the boxer's fitness to participate.
2. At least one physician present at all bouts with absolute authority to terminate the contest for medical reasons.
3. The second knockdown in any one round must terminate the contest.
4. Following a knockout, the fighter is automatically suspended for as long as medical consultants think necessary.
5. New improved shock-absorbing ring padding.
6. The required use of headgears and properly-fitted mouthpieces.
7. High quality coaching and training.
8. Referees familiar with and alert to the health hazards.

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the Journal, 529-36th Street, Des Moines 12, Iowa.

Coming Meetings

IOWA

Oct. 3	**Otolaryngology (S.U.I. College of Medicine).** University Hospitals, Iowa City
Oct. 5	**IMS Conference of County Society Presidents and Secretaries.** Hotel Savery, Des Moines
Oct. 5-6	**Arthritis and Rheumatism (S.U.I. College of Medicine).** University Hospitals, Iowa City
Oct. 8-9	**Iowa Conference on Gerontology.** S.U.I., Iowa City
Oct. 11	**Northeast Iowa Clinical Conference (Black Hawk County Medical Society and the Iowa Chapter of the AAGP).** Masonic Temple, Waterloo
Oct. 13	**Radiology (S.U.I. College of Medicine).** University Hospitals, Iowa City
Oct. 24	**Postgraduate Conference (AAGP and Des Moines County Medical Society).** Burlington Hotel, Burlington (Begins at 2:00 p.m., CST)
Oct. 31-Nov. 1	**U. S. Section, International College of Surgeons, Midwestern States Regional Meeting.** Hotel Savery, Des Moines
Nov. 1	**Postgraduate Conference (AAGP and American Cancer Society).** Country Club, Red Oak
Nov. 7-8	**Institute on Abnormal Newborn.** S.U.I. College of Medicine, Iowa City
Nov. 7-9	**Annual Meeting of Iowa Welfare Association.** Hotel Savery, Des Moines
Nov. 16	**Otolaryngology for the General Practitioner.** S.U.I. College of Medicine, Iowa City

CONTINENTAL U. S.

Oct. 1-3	**Kansas City Southwest Clinical Society.** Hotel Muehlebach, Kansas City
Oct. 1-3	**Glaucoma.** University of California, San Francisco
Oct. 1-4	**Forty-seventh Annual Scientific Assembly of the Interstate Postgraduate Medical Association.** Palmer House, Chicago
Oct. 1-5	**Gynecological Endocrinology.** New York University Medical School, New York City
Oct. 1-5	**Basic Electrocardiography.** Cook County Graduate School of Medicine, Chicago
Oct. 1-5	**Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago
Oct. 1-5	**Basic Mechanisms of Internal Medicine (American College of Physicians).** Medical College of Virginia, Richmond
Oct. 1-5	**Difficult Contemporary Problems in Internal Medicine (American College of Physicians).** University of Oregon Medical School, Portland
Oct. 1-12	**Clinical Uses of Radioisotopes.** Cook County Graduate School of Medicine, Chicago
Oct. 2-3	**Twenty-second Congress on Occupational Health (AMA Council on Occupational Health).** Somerset Hotel, Boston
Oct. 2-5	**American Roentgen Ray Society.** Shoreham Hotel, Washington, D. C.
Oct. 2-5	**Thirteenth Annual Meeting of the Animal Care Panel.** Conrad Hilton Hotel, Chicago
Oct. 3-5	**American Association of Medical Clinics.** Multnomah Hotel, Portland, Oregon
Oct. 3-5	**American Academy for Cerebral Palsy.** Americana Hotel, Bal Harbour, Florida
Oct. 4-5	**Disability Evaluation and Worker Placement (University of Nebraska College of Medicine, Department of Preventive Medicine and Public Health, and Department of Physical Medicine and Rehabilitation).** Omaha
Oct. 4-6	**First National Congress on Mental Illness and Health (AMA with cooperation of the American Psychiatric Association).** Palmer House, Chicago
Oct. 5-7	**Pediatric Infections.** University of California, San Francisco
Oct. 8-10	**Third Annual Program Conference of Blue Shield Plans.** Americana Hotel, Miami Beach, Florida
Oct. 8-10	**Indiana State Medical Association.** French Lick-Sheraton Hotel, French Lick, Indiana
Oct. 8-10	**Gallbladder Surgery.** Cook County Graduate School of Medicine, Chicago
Oct. 8-12	**General Practice Review.** Cook County Graduate School of Medicine, Chicago
Oct. 8-12	**Advances in the Medical Aspects of Cancer (American College of Physicians).** Memorial Hospital, Memorial Sloan-Kettering Cancer Center, New York City
Oct. 8-19	**Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago
Oct. 9-12	**American Dietetic Association.** Miami Beach Convention Hall, Miami Beach, Florida
Oct. 10-11	**Medicine in Industry.** University of California, San Francisco
Oct. 10-12	**International Symposium on Comparative Medicine (The Animal Medical Center).** Hotel Waldorf-Astoria, New York City
Oct. 11-13	**Surgery of Hernia.** Cook County Graduate School of Medicine, Chicago
Oct. 12	**Mississippi Valley Thoracic Society Medical Sessions.** Claypool Hotel, Indianapolis
Oct. 12-13	**Drug Therapy in Clinical Practice.** University of California, San Francisco
Oct. 12-13	**Nineteenth Annual Meeting of the American Medical Writers' Association.** Sheraton Park Hotel, Washington, D. C.
Oct. 13-19	**American School Health Association.** Hotel Barcelona, Miami Beach
Oct. 14-17	**American Orthotics and Prosthetics Association.** Ramada Inn, Phoenix
Oct. 15	**American Association of Public Health Physicians.** Fontainebleau Hotel, Miami Beach
Oct. 15-19	**Advances in Medicine.** Cook County Graduate School of Medicine, Chicago
Oct. 15-19	**Annual Clinical Congress, American College of Surgeons.** Atlantic City, New Jersey
Oct. 15-19	**Biologic Foundations for the Medicine of Tomorrow (American College of Physicians).** University of Wisconsin Medical School, Madison
Oct. 16-18	**American College of Preventive Medicine.** Hotel Fontainebleau, Miami
Oct. 17	**Society for Adolescent Psychiatry.** New York City
Oct. 17-21	**American Society of Clinical Hypnosis.** Chicago
Oct. 18-20	**American College of Obstetricians and Gynecologists, District VI.** Hotel Leamington, Minneapolis
Oct. 20-25	**American Fracture Association.** Huntington-Sheraton Hotel, Pasadena, California
Oct. 20-26	**Annual Otolaryngologic Assembly (Department of Otolaryngology, University of Illinois College of Medicine).** Chicago
Oct. 21-24	**Interstate Postgraduate Medical Association of North America.** Palmer House, Chicago
Oct. 21-26	**American Society of Anesthesiologists, Inc.** Statler Hilton Hotel, New York City
Oct. 22-23	**American Cancer Society.** Biltmore Hotel, New York City
Oct. 22-26	**Blood Vessel Surgery.** Cook County Graduate School of Medicine, Chicago
Oct. 22-26	**Clinical Cardiopulmonary Physiology (American College of Chest Physicians).** Knickerbocker Hotel, Chicago
Oct. 23-25	**Clinical Pathology in Medical Practice (Medical College of Georgia and Foundation).** Augusta
Oct. 25	**Symposium on School Health.** University of Kansas School of Medicine, Kansas City, Kansas
Oct. 25-27	**Obstetrics and Gynecologic Surgery.** University of California, San Francisco
Oct. 25-31	**Association of American Medical Colleges.** Biltmore Hotel, Los Angeles
Oct. 27-Nov. 1	**American Academy of Pediatrics.** Palmer House, Chicago
Oct. 27-Nov. 4	**American Fracture Association.** Huntington-Sheraton Hotel, Pasadena

Oct. 29-31	**Twenty-seventh Annual Convention of the American College of Gastroenterology.** Morrison Hotel, Chicago. Followed by Annual Course in Postgraduate Gastroenterology at the Morrison and at Cook County Hospital, November 1-3
Oct. 29-31	**American Association for the Surgery of Trauma.** The Homestead, Hot Springs, Virginia
Oct. 29-Nov. 1	**Thirtieth Annual Assembly of the Omaha Mid-West Clinical Society.** Civic Auditorium, Omaha
Oct. 29-Nov. 1	**Expanded Surgery of the Nasal Septum and Closely Related Structures (Dept. of Otolaryngology of Loma Linda University School of Medicine and the American Rhinologic Society).** Los Angeles
Oct. 29-Nov. 2	**General Surgery.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 2	**The Rheumatic Diseases: Pathology, Diagnosis and Treatment (American College of Physicians).** Robert B. Brigham Hospital and Peter Bent Brigham Hospital, Boston
Oct. 29-Nov. 2	**Treatment of Varicose Veins.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 2	**Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 9	**Diagnostic Radiology.** Cook County Graduate School of Medicine, Chicago
Oct. 29-Nov. 9	**Urology.** Cook County Graduate School of Medicine, Chicago
Oct. 31-Nov. 3	**American Association of Blood Banks.** Peabody Hotel, Memphis, Tennessee
Oct. 31-Nov. 3	**Congress of Neurological Surgeons.** Shamrock Hilton Hotel, Houston, Texas
Nov. 1-2	**Multiple Injuries and Trauma.** University of California, San Francisco
Nov. 1-2	**Symposium on Neoplastic Diseases (University of Southern California).** Ambassador Hotel, Los Angeles
Nov. 1-2	**Eighth Annual Meeting of American Rhinologic Society.** Statler Hilton Hotel, Los Angeles
Nov. 1-2	**International Research Conference.** Lankenau Hospital, Philadelphia
Nov. 1-3	**Annual Course in Postgraduate Gastrocnterology (American College of Gastroenterology).** Morrison Hotel, Chicago
Nov. 1-3	**Ninth Annual Meeting, Academy of Psychosomatic Medicine.** Radisson Hotel, Minneapolis
Nov. 3-4	**Thirteenth County Medical Societies Conference on Disaster Medical Care.** Palmer House, Chicago
Nov. 3-4	**Problems in EKG Interpretation (University of California).** Mount Zion Hospital, San Francisco
Nov. 4-9	**American Academy of Opthalmology and Otolaryngology.** Las Vegas Convention Center, Las Vegas
Nov. 5-7	**Symposium on Obstetrics.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 5-16	**Surgical Technic.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Basic Internal Medicine.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Board of Surgery Reviews, Part I.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Gynecology, Office and Operative.** Cook County Graduate School of Medicine, Chicago
Nov. 7	**Teaching Seminar on Graduate Medical Education—"The Role of the Non-University Hospital."** Michael Reese Hospital and Medical Center, Chicago
Nov. 7-8	**Morris Ginsberg Memorial Seminar: Symposium on Renal Disease.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 7-10	**Fetal and Infant Liver Function and Structure (New York Academy of Sciences).** Henry Hudson Hotel, New York City
Nov. 8-10	**Atherosclerosis and Hypertension.** New York University Medical Center, New York
Nov. 9	**Sixth Annual Symposium on Diabetes (Diabetes Association of Greater Chicago).** Offield Auditorium, Passavant Memorial Hospital, Chicago
Nov. 9-10	**Clinics in Dermatology.** University of California, San Francisco
Nov. 10	**Gastroenterostomy.** Presbyterian Medical Center, San Francisco
Nov. 12-15	**Symposium on Internal Medicine.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 12-16	**Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs (American College of Chest Physicians).** Barbizon-Plaza Hotel, New York
Nov. 13-15	**Diagnosis and Practical Management of Arthritis.** Medical College of Georgia and Foundation, Augusta
Nov. 13-16	**Surgical Rehabilitation of Arthritic Deformities.** New York University Medical Center, New York
Nov. 13-17	**Endocrinology and Metabolism (American College of Physicians).** Johns Hopkins Hospital, Baltimore
Nov. 14-15	**Second Annual Milwaukee Medical Conference.** Milwaukee County Hospital, Milwaukee
Nov. 17-18	**Psychiatry in General Practice, A Clinical Workshop (University of California).** Napa State Hospital, San Francisco
Nov. 17-18	**Psychiatry in Medical Practice (University of Southern California School of Medicine).** Santa Barbara County General Hospital, Los Angeles
Nov. 24-25	**Interim Session, American College of Chest Physicians.** Ambassador Hotel, Los Angeles
Nov. 25-28	**American Medical Association Clinical Meeting.** Los Angeles
Nov. 26-30	**Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago
Nov. 26-Dec. 7	**Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago
Nov. 26-Dec. 7	**Board of Surgery Review, Part II.** Cook County Graduate School of Medicine, Chicago
Nov. 29-Dec. 2	**American Medical Women's Association.** Ambassador Hotel, Los Angeles
Nov. 30-Dec. 1	**Practical Electrocardiography (University of California).** Franklin Hospital, San Francisco

ABROAD

Oct.	**American Society of Plastic and Reconstructive Surgery.** Hawaiian Village Hotel, Honolulu. Write T. Ray Broadbent, M.D., 508 East South Temple, Salt Lake City, Utah
Oct. 2-5	**International Congress for Prophylactic Medicine and Social Hygiene.** Bad Godesberg, West Germany. Write: D. A. Rottmann, Liechensteinstrasse 32, Vienna, Austria
Oct. 7-13	**World Congress of Cardiology,** Medical Center, Mexico City. Write: Dr. I. Costero, Instituto N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F.
Oct. 22-28	**International Medical World Conference on Organizing Family Doctor Care.** Victoria Halls, Southampton Row, London. Write: The Editor, The Medical World, 56 Russell Street, London, W.C.I.
Nov. 11-16	**World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19
Nov. 18-24	**Asamblea Nacional de Cirujanos.** Hospital Juárez, Mexico City
Dec.	**International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines
Jan. 25-Feb. 6, 1963	**Operation: Surgical Specialties (West Indies Congress of the International College of Surgeons).** Cruising aboard the S.S. Santa Rosa; clinical meetings in Puerto Rico, Jamaica, Haiti, Venezuela, Netherland West Indies. For arrangements contact International Travel Service, Inc., 116 South Wabash Avenue, Chicago 3
Feb. 20-24, 1963	**Seventh International Congress on Discases of the Chest (American College of Chest Physicians).** New Delhi, India
May 2-5, 1963	**Hawaii Medical Association.** Princess Kaiulani Hotel, Honolulu
May 7, 1963	**World Health Organization.** Palais des Nations, Geneva, Switzerland. Write: World Health Organization, Office of the Director-General, Palais des Nations, Geneva, Switzerland
June 2-5, 1963	**Canadian Ophthalmological Society.** Royal York Hotel, Toronto
June 14-16, 1963	**Society of Obstetricians and Gynaecologists of Canada.** Delawana Inn, Ontario

Vaginal and Rectal Examinations In Pregnancy

Semmelweis and Holmes first established the fact that puerperal sepsis was a wound infection resulting from the introduction of septic material into the birth canal by the examining hand of the obstetrical attendant. With the advent of aseptic technic, the incidence of epidemic puerperal infection was reduced. In an attempt further to reduce the incidence of infection, rectal examination was introduced as a means of following patients in labor. This has proved to be a safe and practical procedure, and it has been widely accepted in this country. Present-day American obstetrics has adhered to the principle that the birth canal should *not* be entered in labor except for strict indications. This policy has proved to be sound, since even before the discovery of antibiotics, puerperal infection was no longer the major cause of obstetrical mortality in Iowa.

Physicians are annoyed with the inconvenience of an occasional inaccurate rectal examination, particularly when they have been called to the hospital at 3:00 a.m., expecting an immediate delivery, only to find on sterile pelvic examination that the cervix is 6-7 cm. dilated. In order to eliminate these errors, certain physicians are advocating that all examinations in labor be done vaginally.

Since 1954, three reports have been published concerning the advantages and safety of routine vaginal examinations during labor. These three reports comprise only 1,834 patients. Sterile technics were employed in the two series reported upon by Prystowsky, Peterson and Richey, while in the series reported by Fara, non-sterile gloves were employed. No serious infections were encountered, and the puerperal morbidity was only slightly increased. The majority of the examinations were done by the physicians, and in one series the number of vaginal examinations was limited.

Although thalidomide was judged safe for clinical use, it has now become evident that its testing was grossly inadequate. Similarly, the routine use of vaginal examinations during labor in only 1,834 patients without serious morbidity does not constitute adequate proof. A much larger series of patients must be studied under a variety of conditions, allowing nurses, licensed practical nurses, medical students and physicians to perform unlimited vaginal examinations. Only then will the safety of the procedure have been proved.

For the present, it would seem advisable to retain the rectal examination as the procedure of choice for following patients in labor. We recognize that sterile vaginal examinations are a valuable and a safe procedure in the following circumstances: (1) when the rectal findings are uncertain, (2) with a high presenting part, (3) with premature rupture of the membranes in a breech presentation, (4) in an abnormal labor and (5) when pelvic tumors are suspected.

One additional question remains unanswered: could not the average patient in normal progressive labor be followed without any examinations?

—W. C. Keettel, M.D.
Professor and Head of
Obstetrics and Gynecology
S.U.I. College of Medicine

The Power Lawnmower Is a Dangerous Machine

It is estimated that power lawnmowers are responsible for 75,000 injuries in the United States each year. Countless toes and fingers have been amputated, and innumerable feet have been lacerated as a result of carelessness in handling these motor-operated labor-saving devices.

The obvious ways for one to be hurt by such a machine are to use a hand or a foot in attempting to unclog the blade, without first stopping the motor, and negligently to let it run over one of his feet. An additional hazard, however, is not generally appreciated. A power lawnmower can hurl whatever objects chance to lie in its path. The common rotary-type machine has a 2½ horsepower motor that spins its blade at 1,500 to 1,700 revolutions per minute and some of the newer models develop 3 to 3½ hp., and spin blades at 3,000-3,200 r.p.m. A solid object struck by the end of the blade is ejected in much the same way that the giant-killing stone left David's sling-shot, and if it misses the metal guard it can maim anyone within 20-30 feet.

A recent news story told of a serious injury to an adolescent, when a wire coathanger was cut into bits and hurled by the blade of a power lawnmower. The propelled wire entered the boy's chest, passed through his heart and lodged in one of his lungs. Another recent report dealt with an accident in which a piece of the mower blade, broken off when it collided with a stone or something else of that sort, penetrated the wall of a nearby house, traversed a room and lodged in the inside wall.

Despite almost daily reports of serious injuries, many of us aren't being cautious enough with

these machines. A boy must be taught the proper use of a mower, just as he is taught the proper use of a gun or an automobile. Among other things, he must be warned to take no chances with running the power mower over stones and stakes, and to do his mowing when little children are a safe distance away. Anyone who operates a power tool must be thoroughly acquainted with the hazards it poses, and must maintain a lively respect for those hazards.

"Silent" Gallstones

There has been general agreement among physicians that cholecystectomy is the treatment of choice in symptomatic cholelithiasis, but contrastingly there has been considerable difference of opinion regarding the management of the patient who has so-called "silent" gallstones. Some physicians have urged that symptomless gallstones should be left alone, pointing out that extensive autopsy studies have shown that 20 to 40 per cent of patients over 60 years of age have gallstones. Others have insisted that symptomless gallstones present many dangers, and that 50 per cent of patients with "silent" gallstones eventually develop symptoms. Thus, they advocate prophylactic cholecystectomy.

A recent report from Passavant Memorial Hospital,* Chicago, reported a 10-year study of 623 patients who had undergone cholecystectomy, and cast some light on the problem of the "silent" gallbladder. The study was restricted to cases in which the pathologic diagnosis was either acute cholecystitis or acute gangrenous cholecystitis, and was not based upon the surgeons' diagnoses. The pathologic diagnosis of acute cholecystitis had been made in 58 cases, 38 of whom had had previous symptoms of biliary tract disease. Three additional cases were considered to have been not truly asymptomatic, and there were 17 patients who had been symptom-free until an acute episode that necessitated an operation.

Of the 17 patients with "silent" gallbladders, 65 per cent had been over 60 years of age, and 35 per cent had been over 65. Five were females and 12 were males. Only two in the group had learned of their gallstones as a result of health examinations. All 17 patients had been admitted to the hospital acutely ill, with temperatures of 100-105°F. and complaining of severe abdominal pain. All had been nauseated and had vomited one or more times before admission. All had exquisite tenderness, with guarding over the right upper quadrant of the abdomen, and in three patients a palpable, tender mass could be felt in the right upper quadrant. The leukocyte counts had varied from a leukopenia to a brisk leukocytosis.

In the preoperative evaluations of the 17 patients, two had had hypertensive cardiovascular disease, eight had had arteriosclerotic heart disease, one had had moderate to severe diabetes, and one had had pulmonary emphysema. Four patients had suffered from two or more degenerative diseases, seven had had no major degenerative disease, and five of those latter seven were under 50 years of age.

The surgical staff members at the hospital were in general agreement that the ideal management of acute cholecystitis is early cholecystectomy, provided that the diagnosis is clear, that the patient is properly prepared, and that there are no medical contraindications. Twelve patients had been operated upon within 72 hours after admission; six within 72 hours from the onset of symptoms; and 6 after periods varying from five to 13 days. Four patients had been operated upon between five and 23 days after the subsidence of acute symptoms. One had been explored on the seventeenth day of hospitalization.

At operation, cholelithiasis had been found in all 17 cases, cholecystectomy had been performed in all instances, and common-duct exploration had been done in six of the group. In six patients, the gallbladders had been gangrenous, with perforation and pericholecystic abcess in two, perforation and peritonitis in one, and cholecystoduodenal fistula in one. Five cases had an associated common-duct obstruction, stones had been responsible in four, and an obstructing adenocarcinoma had been the cause in one patient. In three of the operated patients, there was a severe cholangiohepatitis subsequently verified by culture.

Among the 17 cases there had been three deaths (17.8 per cent). One patient had had cardiac arrest immediately after surgery. One patient had died on the sixth postoperative day, and autopsy had shown a dissecting aneurysm with thrombosis of the right renal artery. One had succumbed to advanced carcinoma of the hepatic ducts. In contrast to a mortality of 17.8 per cent in the group of 17 patients with "silent" gallbladders subjected to operation, the death rate among all of the 58 patients with acute cholecystitis was 5.17 per cent, and among the 623 patients subjected to cholecystectomy over a 10-year period, the mortality was just 0.8 per cent.

As a result of their experience, the group at Passavant Memorial Hospital are convinced that the only way in which the mortality in acute cholecystitis can be reduced is to remove all asymptomatic and mildly-symptomatic gallbladders when they are discovered. They urge a more aggressive search for "silent" gallbladder disease in the under-50 age group. "A cholecystogram," they say, "should be made a part of every general physical examination in the over-45 age group, sharing equal importance with the electrocardiogram and the chest x-ray."

* Method, H. L., Mehn, W. H., and Frable, W. J.: "Silent" gallstones. ARCH. SURG., 55:338-344, (Aug.) 1962.

The Hazards of Amphetamine Therapy

Since the introduction of the amphetamines in 1935, these medications have been used for an increasing number of conditions. Initially prescribed in the management of narcolepsy, they are now frequently employed in obesity, in neurasthenia, in depressive states and in a variety of ill-defined conditions accompanied by fatigue. Regarded as relatively non-toxic, lacking in serious side effects, and non-habit-forming, the amphetamines have been prescribed freely.

A recent article by Kilch and Brandon,* however, should prompt physicians to weigh the indications carefully before writing a prescription for amphetamine-containing drugs. In a British hospital, 12 cases of amphetamine psychosis due to excessive consumption of the drug were admitted over a period of three years. The psychosis took the form of a schizophrenia-like illness, and occurred mostly in men. It usually followed prolonged use of the drug in a daily dose of 100 to 500 mg. There appeared to be great differences in the amounts that patients could tolerate. One of them had developed a psychosis on a daily dose of 20 mg., and another had become mentally ill after a single dose of 50 mg. On the other hand, many patients had taken 300 to 500 mg. of amphetamine daily without developing psychoses.

In addition to the patients admitted with a diagnosis of psychosis, it was found that a considerable number of women who had been admitted because of personality disorders had been taking large quantities of the drug. These women were chronically neurotic, subject to neurasthenic reactions, lacked self-confidence, and became depressed when confronted with adverse situations. The drug appeared to have aggravated their instability, and they suffered a similar aggravation upon withdrawal of the drug.

Prompted by their experience with amphetamine-induced psychosis and with amphetamine-aggravated personality disorders in hospitalized patients, the authors investigated the use of the drug in the city of Newcastle-on-Tyne, which has a population of 269,000. It was found there that the equivalent of 200,000 five-milligram tablets of amphetamine were being prescribed each month, and evidence was uncovered that many patients were taking far more than their prescribed doses. It was concluded that habituation and addiction to the drug were common, and that abuse of amphetamine was a problem of serious proportions. It was estimated that over 500 people there were habituated or addicted to this particular drug.

Through interviews with patients, it was found that the drug was being taken for depression, fatigue, obesity, anxiety, and—though less frequently—as a "pep pill." The analogy between amphetamine and alcohol seemed apparent. Many people were taking the drug as a means of escape from monotony—the tedium and frustrations of life. Typical of the addict or habituate was the patient accustomed to taking large doses of amphetamine who resorted to all sorts of subterfuges in getting prescriptions for the drug. Thus, the unwary physician may unwittingly contribute to the problem by prescribing excessive numbers of the pills, or by sanctioning numerous refills.

The July 21 issue of the BRITISH MEDICAL JOURNAL contains two letters from British physicians reporting similar situations in other cities and testifying to the dismal outcome of amphetamine addiction.

It appears obvious that the amphetamines should not be prescribed indiscriminately, and that the hazards of habituation or addiction must be kept in mind.

* Kilch, L. G., and Brandon, S.: Habituation and addiction to amphetamines. BRITISH M. J., 2:40-43, (Jul. 7) 1962.

Unilateral Renal Disease

According to the medical literature, the diagnosis of unilateral renal disease is being made with increasing frequency. Certain clinical clues should lead one to suspect this entity. Severe headache with an accompanying restlessness or severe nervousness is a part of the picture. A bruit heard over the region of the renal arteries should prompt one to make a further investigation to establish the diagnosis. Including this disease in the differential diagnosis is advisable in patients with hypertension of very recent origin, in patients under 30 years of age who have severe hypertension, in elderly hypertensives with hypertension of recent onset, and in patients with histories of trauma to the kidney area. Patients who develop the accelerated type of hypertension, but with no family history of high blood pressure, should be suspected of having this disease. Papilledema, vascular insufficiency of the lower extremities, or aortic aneurysm can frequently be found with this condition.

Certain procedures assist in establishing the diagnosis of unilateral renal disease: (1) Intravenous pyelograms should be done, and evidence of disparity in the size and function of the kidneys may be demonstrated. It has been reported, however, that in one fourth of the patients relieved of hypertension by nephrectomy, the intravenous pyelograms were normal. (2) Differential scintiscans of the kidneys may be done, employing I-131 Diodrast. (3) The Howard test is a retrograde study of renal function in which the sodium excretion, the water excretion and the creatinine clearance are studied. In the ischemic kidney, there is a 20 per cent decrease in sodium excretion, a 50 per cent decrease in water excretion,

and an increase in the reabsorption of creatinine, as opposed to the normal kidney. (4) Renal arteriography may demonstrate obstruction or narrowing of the renal artery.

The diagnosis of unilateral renal disease having been established, the treatment is entirely surgical. The technic employed depends upon the pathology encountered and the extent of the associated vascular disease.

What Are Laboratory Tests Costing Your Patient?

It might be wise for attending physicians to request carbon copies of the bills that the hospital presents to his patients—not as a means of checking up on anyone else, but as a way of reminding himself that everything he asks of the hospital is sure to strike his patient in the pocketbook. Entirely too often the physician is totally lacking in cost-consciousness, in so far as laboratory procedures and therapeutic measures are concerned. Thus, many hospital bills, even for short periods, are astronomical.

Since the majority of patients are covered by some form of insurance, and since utilization determines premiums, the doctor who orders laboratory work with abandon raises costs for everyone who must carry that type of coverage.

In a recent article by Reznikoff and Engle, entitled "The Physician, the Laboratory and the Patient,"* it is emphasized that when ordering laboratory tests, the physician should ask himself the following questions: (1) Is the test relevant and of real value? (2) Is it one of the few tests which are highly specific or pathognomonic? (3) Will the test help in the diagnosis and care of the patient? (4) Is it timely in the present phase of the illness? (5) Are several examinations being requested when one or a few would provide all of the necessary information? (6) Is the procedure one that is characterized by a considerable margin of error? (7) Does the test entail an element of danger to the patient?

Perhaps we are using the laboratory too extensively as a substitute for a carefully taken history and a thorough physical examination. Well remembered is the attending physician of another day who, in making ward rounds, could recognize at a glance that the newly admitted patient had mitral stenosis, aortic regurgitation or pernicious anemia. Trained eyes, ears and fingers are still basic in diagnosis. A carefully taken history frequently establishes the cause of a patient's difficulty.

Before ordering a laboratory test, the physician should give thought to the need for the test, and to its cost to the patient or to his insurance company. A copy of each patient's bill might well deter him from ordering unnecessary or excessive laboratory procedures for the next person whom he attends in the hospital.

* Reznikoff, P., and Engle, R. L., Jr.: Physician, laboratory and patient. G.P., August, 1962, pp. 83-86.

Greetings to the New Dean

The JOURNAL congratuates Dr. Robert C. Hardin upon his appointment as dean of the S.U.I. College of Medicine, to succeed Dr. Norman B. Nelson. The University is fortunate to obtain as dean a physician of Dr. Hardin's qualifications.

The chief administrative officer of a modern medical college has a great responsibility and a difficult task. His success depends in large measure upon the cooperation that his staff gives him and upon the harmony with which they work together. To some extent, however, he needs the support of doctors throughout the state, and this the practitioners throughout Iowa pledge to him. They are proud of the S.U.I. College of Medicine, and in every possible way they want to help Dr. Hardin make it even greater.

Mercy Hospital Medical Day

The third annual Medical Day, at Mercy Hospital, Des Moines, is to be Saturday, November 10, and the program chairman, Dr. Joseph G. Schupp, Jr., encourages all physicians to attend the presentations.

Saturday Afternoon, November 10

Mercy Hall

1:30 Welcome—John T. Bakody, M.D., chief of staff
1:45 "Medical Approaches to the Control and Prevention of Atherosclerosis"—William E. Connor, M.D., Iowa City
2:15 "Medical Therapy in Specific Categories of Ischemic Cerebrovascular Disease"—Robert G. Siekert, M.D., Rochester, Minnesota
3:00 "Radiologic Diagnosis of Vascular Disease"—Colvin H. Agnew, M.D., assistant professor of radiology, University of Kansas
3:30 "Surgical Treatment of Aneurysm and Occlusive Vascular Disease"—E. Stanley Crawford, M.D., associate professor of surgery, Baylor University College of Medicine
4:00 PANEL DISCUSSION AND QUESTION AND ANSWER PERIOD —Moderator: Robert C. Hardin, M.D., dean of the S.U.I. College of Medicine

Saturday Evening, November 10

Grand Ballroom, Ft. Des Moines Hotel

6:30 Social Hour
7:15 BANQUET
"The Radiation Hazard"—Edward Teller, Ph.D., nuclear physicist, University of California

President's Page

Candidates for seats in the United States Senate and House of Representatives, and candidates for seats in the General Assembly of Iowa are intensifying their efforts to win votes. This, consequently, is the time for physicians who haven't already done so to make their contributions to the campaign funds of the candidates who share their views on the legislative proposals that affect medicine.

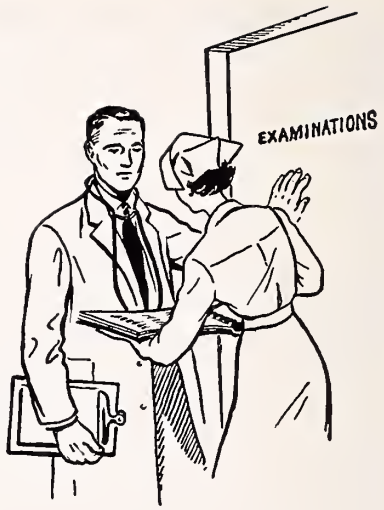
May I remind you that the Iowa Physicians' Political League is an instrumentality through which doctors can pool their contributions, and thus add weight to their positions on the issues? The IPPL is non-partisan, and a physician's wishes will be strictly observed if he chooses to earmark as much as a half of his donation.

On election day, November 6, be sure to cast your vote, and make certain that the other eligible members of your household cast theirs!

George K. Scanlon

President

THE DOCTOR'S BUSINESS



The Wharton Study of Investment Funds

HOWARD D. BAKER
Waterloo

The Securities and Exchange Commission has forwarded to Congress a report on the "mutual funds" that contains a half-dozen legislative recommendations capable of altering the nation's securities business to a very marked degree. The study, and the proposals that arose from it, are the work of a group of professors at the Wharton School of Finance and Commerce, of the University of Pennsylvania. The study was four years in the making, and it cost nearly $100,000.

The legislative suggestions, if enacted, might slow down the growth of the investment funds, the net assets of which have increased from $75 million in 1932 to over $19 billion in 1962. The ways of eliminating potential conflicts of interest between those who control the funds and those who hold the funds' shares would strike at selling methods and ways of doing business which are deeply ingrained in the industry. Following are the major proposals for legislative changes contained in the study:

1. Funds would be required to revise their corporate organizations by centralizing, in the fund, all investment-advisory and sales functions. At present these are frequently performed by separate but affiliated groups, and the fund itself is left a mere corporate shell, controlled by the advisory group. In many cases, investors are now poorly informed as to the delegation of power over and responsibility for their money.

2. The Securities and Exchange Commission would be empowered to limit and regulate salesmen's commissions, the sales charges that might be assessed against the buyer, and the fees paid to the investment advisor for managing the portfolio.

3. Whereas present law requires that no fewer than two-fifths of the seats on a fund's board of directors shall be occupied by unaffiliated independents, it is proposed that the independents' representation be made even heavier, and that the term "unaffiliated independent" be redefined so as to exclude friends, relatives or business associates of the investment advisor.

4. Whereas it is widespread practice for the funds to award their brokerage business to brokers who sell the funds' shares, it is suggested that the stock exchanges might be required to sell seats to investment funds, thus making it unnecessary for them to pay brokers' fees at all.

5. Funds might be required to furnish investors with reports comparing their fund with others, as regards performance, "load" charges, advisory fees and placement of brokerage business.

6. The government might take a new look at mutual fund shareholders' voting rights. At present, these rights are of "dubious value" because of the wide distribution of the funds' shares.

Although their report contained some noteworthy findings on the growth and present size of the industry, the professors did not conclude that the United States needs be concerned about the size of the investment funds, either individually or collectively. They did conclude, however, that the growth of investment funds has channeled substantial capital into the stock market, and consequently has helped raise stock prices to record levels over the past decade.

In general, the investment fund industry has been irritated but not overly disturbed by the "Wharton Report." The consensus is that a temporary decline in sales of fund shares may result. Most funds feel that the report is just another "planned tactic" of the Administration to shake investor confidence.

Although much of the industry does not mind being investigated (Indeed, many funds cooperated in the study), and although it would welcome rules and regulations designed to place the entire industry on a uniform basis, it resents what it considers "bad political judgment and timing" in the release of the "academic, ivory-tower report."

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

Hearing Conservation

The Ototoxicity of Drugs

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, *consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.*

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of representatives from the section on otolaryngology of the Iowa Medical Society, from the Academy of Otolaryngology and Ophthalmology, from the American Academy of General Practice, from the State Department of Health, from the Department of Otolaryngology and the Department of Speech Pathology and Audiology at S.U.I., from the Division of Special Education of the State Department of Public Instruction, from the Iowa School for the Deaf, and from the Des Moines Chapter of the American Hearing Society.*

* C. M. Kos, M.D. (chairman), otologist in private practice, Iowa City.
Joseph Wolvek (executive secretary), consultant, Hearing Conservation Services, State Department of Public Instruction, Des Moines.
L. E. Berg, superintendent, Iowa School for the Deaf, Council Bluffs.
Dale S. Bingham, consultant, Speech Therapy Services, State Department of Public Instruction, Des Moines.
Paul Chesnut, M.D., private practitioner and member of AAGP, Winterset.
James F. Curtis, Ph.D., head, Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Madelene M. Donnelly, M.D., director, Division of Maternal and Child Health, State Department of Health, Des Moines.
Joseph Giangreco, assistant superintendent, Iowa School for the Deaf, Council Bluffs.
Malcolm Hast, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Byron Merkel, M.D., otolaryngologist in private practice and member of Academy of Otolaryngology and Ophthalmology, Des Moines.
William Prather, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City.
Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City.
Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

It is not generally known that any of a variety of drugs, when taken in large enough amounts, even for brief lengths of time, can cause irreparable injury to the hearing. Often the manifestations of harm done to the hearing are delayed for some time after the patient has used the drugs, so that the relationship between drug ingestion and subsequent hearing impairment is not always evident. Also, there are considerable individual variations in auditory susceptibility to the adverse effects of ototoxic drugs. Some ears are so sensitive that only a few doses may affect the hearing, and others can tolerate more without auditory injury.

Of course, it is occasionally necessary to employ the ototoxic drugs to save life or to prevent serious impairment from disease, but it is well for the physician to know that these same drugs may cause severe hearing loss in exchange for the patient's recovery.

Some of the drugs which are particularly ototoxic are streptomycin, dihydrostreptomycin, kanamycin, neomycin, viomycin and vancomycin. Since some of these drugs are also nephrotoxic, they may become excessively concentrated in the tissues, and they may cause damage to the neural elements of the auditory and vestibular systems more quickly and profoundly.

Thus, these drugs should never be used for relatively mild infections or for prophylactic reasons. Furthermore, using these drugs in combination with others in order to dilute the dosage is to be discouraged.

SYMPTOMS

The first symptoms of hearing impairment frequently are a sensation of fullness in the ears and a tinnitus, usually of a high-pitched quality. The hearing may seem "fuzzy" and "hollow" before the patient realizes that he has a serious hearing impairment. Hearing tests will reveal some degree of sensory-neural loss even when no appreciable handicap is evident. As hearing impairment progresses, one's understanding (discrimination) of what is heard becomes less accurate, and one has increasing difficulty in distinguishing similar-sounding words and phrases.

TREATMENT

Unfortunately, there is no specific medical or surgical treatment for this kind of hearing impairment. Auditory training under the direction of a competent speech therapist or hearing clinician may do some good, and a hearing aid may be helpful, but in many instances a hearing aid may not be so effective as expected. An educational program to teach the user how to get the most satisfaction from amplification is often as important as the proper choice of hearing aid. The patient must make many emotional, social and sometimes occupational adjustments in order to experience the best results from the use of a hearing aid. Certainly extreme caution on the part of the physician, in prescribing potentially ototoxic drugs, will reduce the incidence of such auditory needs.

In Memoriam

In a memorial article on Clarence E. VanEpps, M.D., who died on August 10, 1962, in Phoenix, Arizona, at the age of 86, one can first offer data relative to his life and his many accomplishments such as the following:

B.S. degree from Iowa State College in 1894; M.D. from S.U.I. in 1897; M.D. from the University of Pennsylvania in 1898.

Joined the S.U.I. faculty in 1904; was named professor emeritus in 1949.

His field was neurology, but he did pioneering work with x-ray and much work in urology.

Clarence E. VanEpps, M.D., 1876-1962

He was a patron to various artists, the most notable of whom was Grant Wood.

His collection of paintings has been left to S.U.I.

However, to pay proper tribute to Clarence VanEpps, it is essential that I add my recollections of him as a friend. I knew him first as a student at the University. Later, our paths crossed again. After preparing himself in the fields of ophthalmology and otolaryngology, he located at Davenport at about the same time that I started a practice in the same field there. Our friendship was then renewed.

He was always most versatile in his interests, as was shown by his transferring to the field of neurology and returning to the University to teach it.

Beyond material things and educational attainments, there is something else in life—character and friendship. I feel very fortunate to have had the friendship of Clarence VanEpps. It was one of the finest friendships that I ever had.

"Yon rising moon that looks for us again,
How oft hereafter will she wax and wane,
How oft hereafter rising looks for us;
Through this same Garden for one of us in vain."

—RUBÁIYÁT OF OMAR KHAYYÁM

—GORDON F. HARKNESS, M.D.

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing on page vii in this issue:

PARSONS and SOMMERS—GYNECOLOGY

A useful new guide to management of gynecologic disease—parallels the growth and aging patterns of women covering the disorders accompanying each stage of the life cycle.

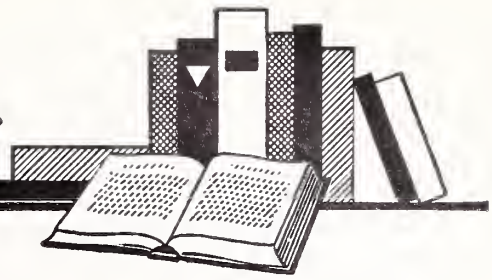
DAVIDSOHN and WELLS—Todd-Sanford CLINICAL DIAGNOSIS BY LABORATORY METHODS

Explicit guidance on how to perform every possible clinical test—what to do, when and how to do it, and how to interpret your results.

WOLFF—ELECTROCARDIOGRAPHY

Help in understanding and evaluating electrocardiograms in terms of clinical medicine—without relying on memorization of examples.

THE JOURNAL *Book Shelf*



BOOKS RECEIVED

CURARE AND CURARE-LIKE AGENTS (Ciba Foundation Study Group No. 12), ed. by *A. V. S. DeReuck*, M.Sc., A.R.C.S. (Boston, Little, Brown and Company, 1962. $2.95).

THE EXOCRINE PANCREAS: NORMAL AND ABNORMAL FUNCTIONS, ed. for the Ciba Foundation by *A. V. S. DeReuck*, M.Sc., A.R.C.S. (Boston, Little, Brown and Company, 1962. $11.50).

SURGERY OF THE CHEST, by *John H. Gibbon, Jr.*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $27.00).

HANDBOOK OF PSYCHIATRIC TREATMENT IN MEDICAL PRACTICE, by *Nathan S. Kline*, M.D., and *Heinz Lehmann*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $3.50).

SURGERY IN WORLD WAR II: ACTIVITIES OF SURGICAL CONSULTANTS, VOL. I, ed. by *Col. John Boyd Coates, Jr.*, MC. (Washington, D. C., Office of the Surgeon General, Department of the Army, 1962. $6.50).

WOUND BALLISTICS, ed. by *Col. John Boyd Coates, Jr.*, MC, and *Major James C. Beyer*, MC. (Washington, D. C., Office of the Surgeon General, Department of the Army, 1962. $7.50).

GYNECOLOGIC AND OBSTETRIC PATHOLOGY, by *Edmund R. Novak*, M.D., and *J. Donald Woodruff*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $16.00).

ADVANCES IN RHEUMATIC FEVER, by *May G. Wilson*, M.D. (New York, Hoeber Medical Division, Harper & Row, Publishers, Inc., 1962. $10.00).

DOCTORS, PATIENTS AND HEALTH INSURANCE, by *Herman Miles Somers* and *Anne Ramsay Somers*. (Garden City, N. Y., Doubleday & Company, Inc., 1962. $1.95).

PERIPHERAL VASCULAR DISEASES, THIRD EDITION, by *Edgar V. Allen*, M.D., *Nelson W. Barker*, M.D., and *Edgar A. Hines, Jr.*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $18.00).

ELECTROCARDIOGRAPHY: FUNDAMENTALS AND CLINICAL APPLICATION, THIRD EDITION, by *Louis Wolff*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $8.50).

CLINICAL BIOCHEMISTRY, SIXTH EDITION, by *Abraham Cantarow*, M.D., and *Max Trumper*, Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $13.00).

GYNECOLOGY AND OBSTETRICS, by *John William Huffman*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $28.00).

GYNECOLOGY, by *Langdon Parsons*, M.D., and *Sheldon C. Sommers*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $20.00).

THE HOUSE PHYSICIAN'S HANDBOOK, by *C. Allan Birch*, M.D. (Baltimore, The Williams & Wilkins Company (U. S. agents), 1962. $4.50).

CORRELATIVE NEUROANATOMY AND FUNCTIONAL NEUROLOGY, by *Joseph G. Chusid*, M.D., and *Joseph J. McDonald*, M.D. (Los Altos, California, Lange Medical Publications, 1962. $5.50).

BOOK REVIEWS

LATHAM'S APHORISMS, ed. by *William B. Bean*, M.D. (Iowa City, Prairie Press, 1962. $5.00).

A couple of years ago, I read THE QUIET ART, in which the compiler, Robert Coope, had included several quotations from Peter Mere Latham. They made me curious about Latham, partly because they woke me up, and partly because I hadn't heard of him before or didn't recall his name. One of the quotations concerned false remedies: "Only let the most worthless nostrum get backed by the credit of some good name, and it will never cease to pass current for something in the world, and will never be altogether got rid of from our materia medica. Thus, upon the whole, it is sad to think how much the practice of medicine is blindly engaged in a busy, noisy workshop of impossibilities."

Latham interested me, and I tried to find out more about him. Now Bean has produced this book. He has written a scholarly introduction and has edited extracts full of Latham's originality, careful observation and good discussion.

One reason for reading Latham is that he could write. He had style. He used words simply, lucidly and precisely. It is a pleasure to read him nowadays when good writing by physicians is uncommon, superior style is rare, and excellence is striking. Bean himself is a leader in the desperate struggle to educate scientists to use words with precision and style. He has written: "Some of us who admire a particular writer for his excellence and distinction may feel that the happy effect which we enjoy comes from some store of inherent talent or genius. No one would deny that talents vary over wide ranges. But a very large number of writers who have achieved eminence or excellence were not very good writers at the beginning. They improved with time, as they labored to master the technique of writing by following two simple but laborious courses of action: They read good models wherein they could study the style and method an author used in saying what he had on his mind, and they were willing to endure the burden of almost unending toil as they worked first on mechanics, later on the graces, and finally on the complete command and control of language which is essential."

Latham might well serve as an occasional model in style. Let me cite an example: "You must go to the wards of a hospital in order to learn disease and its treatment; for there only you can see the sick man, and inquire his symptoms, and give the remedy, and note its effects, and witness its success or failure." Try

to remove or add one word, and see how the sentence loses its charm and power.

Good writing alone rarely establishes the importance of a book. Latham not only could write; he was a perceptive intellectual, a man who lived by his mind, read widely, knew his own culture, exercised judgment, investigated, meditated and discussed. In the early Nineteenth Century, physicians often seemed to play with words, but Latham demonstrated that he could think clearly and logically. He made some penetrating observations on thought and thinking: "It is no easy task to pick one's way from truth to truth through besetting errors. . . . It takes as much time and trouble to pull down a falsehood as to build up a truth. . . . Men do not go to work with the same good will to detect what they suspect will turn out an error, as to confirm what they hope to find a truth. . . . A premature desire to generalize, an eagerness to arrive at conclusions, and a readiness to rest in them, are very common infirmities, and they offer very serious hindrances to the right acquisition of facts. . . . Bear in mind, then, that abstractions are not facts; and next bear in mind that opinions are not facts. . . ."

Perhaps it should not have surprised me that Latham wrote so provocatively about medical education. Most of the writers we admire have the quality of timelessness. The best use of a life is to prepare something that will outlast it. It is refreshing to realize that little we say about medical education is new. Perhaps someone will start keeping a "commonplace book" containing notes on medical education gleaned from his everyday reading, so that it will be easier for us to recognize a full turn of the wheel. Long before Osler, Latham wrote about bedside teaching: "Have a very great care of your medical student, and how you guide him at starting. Now especially is the time for good advice, if you have any to give. Take him now into the wards of the hospital at once. . . . There let him remain and make it for the present his sole field of observation and thought, or curiosity. . . ."

Latham had some even more cogent words to offer regarding what we naively call the recent expansion of medical knowledge: "If all medical students had 15 or 20 years at their disposal, and could dedicate them all to professional education, we might pardon a little innocent declamation in displaying the rich and varied field of knowledge about to be disclosed to them; but even then, sober truth would compel us to confess that the field so pompously displayed far exceeded in extent what the best mind could hope to compass, even in 15 or 20 years. When, however, we recollect what space of time the majority of men so addressed really can give to their education, the whole affair becomes inexpressibly ludicrous. Now I do protest, in the name of common sense, against all such proceedings as this: It is all very fine to insist that the eye cannot be understood without a knowledge of optics, nor the circulation without hydraulics, nor the bones and the muscles without mechanics: that metaphysics may have their use in leading through the intricate functions of the nervous system, and the mysterious connections of mind and matter. It is a truth, and it is also a truth that the whole circle of science is required to comprehend a single particle of matter; but the most solemn truth of all is that the life of man is threescore years and ten."

Bean has managed to choose a nice mixture of philosophy and practice, of thought and reality. In the section on mind, body and spirit, for instance, Latham's words are: "Now the will, I fear, is far less master of the mind than of the body. A man may resolve never to move from his chair, but he cannot resolve never to be angry." And on rare diseases: "Extraordinary cases are often merely curious, and interesting only because they are curious. But sometimes they are interesting because they furnish rare and fortunate opportunities of instruction, filling up gaps in our knowledge, or fortifying it with new proofs, and so giving it a higher degree of certainty than it had before. . . . A single entire case often furnishes the key to many fragments of cases."

This is a book to be savored at odd moments. I read it on airplanes, during sandwich lunches, and the last thing at night. The flavor increases, unlike that of gum, the longer you chew. The book is an excellent piece of private enterprise, a blend of preceptiveness, scholarship, lucid intelligence and charm which could be prepared only by a scholar of sensibility and critical intelligence. It is a pleasure to see a real professional at work!—*Daniel B. Stone*, M.B.

INTERPRETATION OF SIGNS AND SYMPTOMS IN DIFFERENT AGE PERIODS: PEDIATRIC DIAGNOSIS, SECOND EDITION, by *Morris Green*, M.D., and *Julius B. Richmond*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $13.00).

The second edition of this valuable reference book has the same format as the previous edition. Its primary purpose is to assist the physician in interpreting signs and symptoms at various age periods. The beginning chapters deal with the physical examination and the various conditions which must be noted as one goes through the complete examination of a child. The second major section deals with the individual signs and symptoms, and the role each should have in the differential diagnosis. Emphasis is given to the more common, major signs, and some of the smaller, less common problems are not specifically dealt with.

The third major section of the book deals with health supervision of the pediatric patient. The appendix contains height and weight tables, though they seem somewhat redundant in a book of this type. The authors must be complimented on their very exhaustive index, which facilitates cross references.

This book is recommended to the general practitioner, as well as to the pediatrician.—*M. E. Alberts*, M.D.

ESSENTIALS OF PEDIATRIC PSYCHIATRY, by *Ruben Meyer*, M.D., *Morton Levitt*, Ph.D., *Mordecai L. Falick*, M.D., and *Ben O. Rubenstein*, Ph.D. (New York, Appleton-Century-Crofts, Inc., 1962. $6.00).

A statement in the introduction to this fine book says: "The successful pediatrician must manage the organic aspects of an illness while continuously screening symptoms for their psychic components." The volume then aids the pediatrician in his thinking regarding this aspect of his problem. His close physician-patient relationship will aid him in accomplishing this one of his goals.

The authors have covered many aspects of psychiatry, as it pertains to infants and children, taking into consideration the simple disorders of behavior

and, further on, some of the more major problems of a psychotic nature. They take up some of the measures that can be used in developing a diagnosis, and they touch upon the technics of treatment, though it is their feeling that therapy, in most instances, should be left to the psychiatrist.

The book is interesting and well written, and enough examples are given to help the reader understand the subject matter. This volume cannot be considered a textbook of pediatric psychiatry, inasmuch as the subject is not dealt with exhaustively. Rather, it is a message to the pediatrician regarding his function in screening children for possible psychiatric problems.—*M. E. Alberts*, M.D.

THE CONSUMERS UNION REPORT ON FAMILY PLANNING, by *Allan F. Guttmacher*, M.D. and the editors of CONSUMER REPORTS. (Mount Vernon, N. Y., Consumers Union of U. S., Inc., 1962. $1.75.) Copies are available at reduced rates from Planned Parenthood of Des Moines, 696 Eighteenth Street, Des Moines 14.

Two questions that married couples frequently ask their physician are: "How can we postpone or prevent pregnancy?" and "How can we achieve a pregnancy when we want it?" This book answers both these questions in careful detail.

The Introduction contains a careful account of how pregnancy begins, with illustrations. Though this material is familiar to all doctors, it is not to the great majority of married couples.

The first section describes 12 methods of preventing pregnancy, including "the pills" (supplies of which are available from Planned Parenthood organizations at reduced rates), mechanical and chemical devices, and the rhythm method. One of the most valuable chapters is the one entitled "Your Choice of Method," for it discusses and rates the efficiencies of the various contraceptive products.

Part 2 is concerned with "Improving Fertility." Sometimes the cause of infertility is easily corrected. Finally, there is a detailed account of the way artificial insemination is practiced and where to go for help.

This is a valuable book for any doctor to recommend to his patients.—*Nelle S. Noble*, M.D.

CLINICAL NUTRITION, SECOND EDITION, by 23 authors, ed. by *Norman Jolliffe*, M.D. (New York, Paul B. Hoeber, Inc., 1962. $23.50).

Comparison of the first edition of this book, published in 1950, with the present edition illustrates how far we have traveled in our knowledge of clinical nutrition. Much information considered necessary in the first edition is now common knowledge, and the focus of interest has shifted in many fields. The chapter on protein deficiency presents the facts that have been learned from intensive studies of protein deficiency in young children (kwashiorkor), and the long-term effects of protein deficiency and protein malnutrition, as well as the effects of acute deficiencies such as those accompanying serious burns. The chapter on carbohydrate metabolism is concerned with the long-term management of diabetes, and the prevention of arteriosclerotic complications in diabetics.

The chapters on mineral metabolism have been brought up to date, as have those on vitamin deficiencies. Two new chapters have been added: "Diet and Ischemic Heart Disease" and "Dietary Prevention and Treatment of Hypercholesterolemia." Both of these topics are of importance to most clinicians.

The volume has been carefully edited. Each of the 23 different authors shows simplicity and clarity of writing. The discussions are therefore intelligible not only to nutritionists and others having a long-standing familiarity with the subjects discussed, but to clinicians whose interest in this field of study has been recently intensified. Generally, the chapters are characterized by a conservatism about the subject under discussion.

The book is highly recommended to clinicians and others who are interested in the subjects.—*Genevieve Stearns*, Ph.D.

PEDIATRICS, THIRTEENTH EDITION, by *L. Emmett Holt, Jr.*, M.D., *Rustin McIntosh*, M.D., and *Henry L. Barnett*, M.D. (New York, Appleton-Century-Crofts, Inc., 1962. $18.00).

This is the thirteenth edition of a text originally published in 1896. In addition to the authors named above, 81 authorities in special fields of interest have contributed to it.

Holt's PEDIATRICS has been recognized as a classic for a great many years. The present edition has been thoroughly revised and brought up to date, and thus the book continues to be a valuable reference for the practitioner and an excellent text for the student. A bibliography of pertinent references follows the discussion of each subject.—*Dennis H. Kelly, Sr.*, M.D.

MODERN CONCEPTS OF HOSPITAL ADMINISTRATION, ed. by *Joseph Kalton Owen*, Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $16.00).

Dr. Owen has attempted a comprehensive survey of the hospital administration field. He asserts, "There is need for one volume which provides an outline for action by all members of the hospital team," and he has presented the thinking of a great many leaders in hospital administration by means of separately-authored articles.

The 11 sections have a total of 51 chapters and six appendices. The one entitled "Hospital Trends" concerns the hospital's general position in America, Europe, Asia and Africa. "Providing Hospital Care" takes up community and hospital planning. "Providing Administrative Services" involves finance, procurement, insurance and personnel. "Providing the Patient's Physical Needs" relates to admitting, laundry, maintenance and housekeeping operations. "Providing the Patient's Diagnostic and Therapeutic Needs" treats, at great length, the medical staff, medicine, surgery, obstetrical services, children's services, psychiatry, the mentally ill, the specialty services of pathology and radiology, anesthesia, emergency and outpatient service, nursing, dietary and pharmacy, and concludes with central service, medical records and social service. "Providing for the Patient's Emotional and Spiritual Needs" takes up chaplaincy, and volunteer and recreation service. "Providing Continuing Care" concerns long-term convalescent and home care. "Providing Protective and Interpretive Services" deals with hospital law and public relations. "Financing Hospital Care"

involves government programs as well as the traditional sources of revenue. "Providing Education and Research" relates to medical, nursing and hospital-administration education, research work, and hospital library service. Finally, "Providing Direction, Coordination and Support" discusses current trends in administration and trusteeship.

Appendices 1 through 6 relate respectively to the American Hospital Association, the Canadian Hospital Association, the Canadian Council on Hospital Accreditation, the American Academy of Medical Administrators, the American College of Hospital Administrators, and the relationship between the administrator and planning and construction teams.

The book is oriented more toward the operational than toward the academic aspects of health care. With the exceptions of parts 1, 9 and 10, it is primarily concerned with patient care. The most extensive section, part 4, which concerns the patient's diagnostic and therapeutic needs, contains many excellent articles. One of them is "Organizing the Medical Staff," by Robert S. Myers, M.D., formerly of the Harvard Medical School faculty. He notes that "the better the staff organization, the better the patient care," and treats in a concise manner such aspects of committee organization as the executive, credentials, joint conference, medical records, tissue and audit.

Norman Rosenberg, M.D., has written an excellent article on surgical services, covering topics such as organization of the surgical division and classification of operations. In a section relating to the operating room, he discusses special equipment, safety factors, surgical instruments, operating-room schedules, etc. He feels that morale in a surgical service is important, and treats it in a separate and final section.

The article on obstetrics is particularly well written. Its senior author is Edward Solomans, M.D. This treatise deals with prenatal care, inpatient facilities, nursing service, the unwed mother, ritual circumcision, length of hospital stay, postpartum care, planned parenthood, and death.

Kenneth L. McCoy, M.D., has written an excellent article on the functions, responsibilities and duties of the pathologist and the pathology department in the hospital. He has outlined graphically, as well as narratively, the organization of the pathology department, and has discussed such topics as technical personnel, control of services, and research units. He has devoted a considerable portion of his article to the blood bank.

The contribution by L. Henry Garland, M.D., is a valuable overview of radiology services in the hospital. Among other topics, he takes up radiology contracts on various bases such as percentage of gross, lease of space and equipment cost per case, and he discusses diagnostic and therapeutic equipment, radium and radioactive isotopes.

Lucile Prety Leone, an assistant surgeon general of U.S.P.H.S., has contributed an article entitled "An Overview of Nursing." She discusses the supply and distribution of nurses, and presents some interesting and timely facts and figures. She has taken up the accreditation of schools of nursing, the cost of nursing education, and the nursing organizations in the United States and Canada.

Another contribution that may interest the practitioner is that of Milton I. Roemer, M.D., who compares the general hospital organization in Europe with that which we have in the United States. He predicts that the American hospital system will move in the same general direction as that which the European hospitals have been following.

Dr. Owen's volume is one of the most extensive texts to be published in the hospital field in recent years. Its strengths are many; its weaknesses, few. It covers the entire gamut of hospital services, and is up to date in most respects. It is valuable at the administrators' level, and also provides excellent information and guidelines for the sundry hospital departments and their personnel.

One wonders, however, whether any single volume can be all things to all men. The editor has utilized the services of some excellent men and women educators in the medical and allied fields, but inasmuch as the book is meant to be of considerable help to the hospital administrator, why were not the services of at least one professor of hospital administration utilized? With the possible exception of Milton Roemer, M.D., director of research at the Sloan Institute of Hospital Administration, none are listed as contributors. Then, although the volume contains some excellent illustrations, some could have been omitted. Important though it is that garbage cans be cleaned every time they are emptied, is a picture of a garbage-can-cleaning really necessary in a scholarly volume?

The list of qualified and eminent professionals who contributed to this text is a long one, yet an examination of it reveals that perhaps there are others more qualified in terms of skill, experience and ability in their respective fields. To the extent that some articles are not of particular merit, the text is of decreased quality.

Let me affirm, however, that MODERN CONCEPTS OF HOSPITAL ADMINISTRATION is a valuable book. Its limitations are largely those which may be attributed to the sheer size of the volume. In a few areas where there are conflicting viewpoints (radiologists' reimbursement, for example), only one point of view has been presented. Moreover, many of the chapters contain information which is dated in that it describes current, specific procedures and operations which will become outmoded within a relatively short period of time. This last-mentioned limitation may be due largely to the nature of the subject.

The lists of suggested readings, which follow many of the chapters, constitute one of the book's values, and the work as a whole contains much that will provide insight into the various aspects of modern-day hospital operation and administration.—*Gerhard Hartman*, Ph.D.

Note the changed place and dates, and
Mark Your Calendar
1963 ANNUAL MEETING
IOWA MEDICAL SOCIETY
April 7-10
Hotel Fort Des Moines

The Satisfactions of Being a General Practitioner

REX L. MORGAN, M.D.

A heavy work load, civic responsibilities, and frequent interruptions of his evenings at home and of his outings with his wife and children cause the family physician to become frustrated and disgruntled with his role in medicine. His dissatisfaction is enhanced when he reads articles, in some medical publications, entitled "General Practitioners—the Vanishing Race," "Should General Practitioners Be Allowed in the Surgical Departments?" and "The Family Physician Is Obsolete" —all of which tend to give readers the impression that the general practitioner is a sub-standard doctor.

But frequently we general practitioners have reassuring experiences. Recently, I received a telephone call at 2:00 a.m. from a frightened mother whose four-year-old son had a high temperature of several days' duration. Being new in town, she and her husband didn't know any doctor and were calling me upon the recommendation of a neighbor. After several minutes of conversation, I concluded that her son's condition didn't represent a true medical emergency, but it was serious enough from the parents' point of view to justify my making a house call.

Grumbling, I went to their house. The boy was developing a rash typical of German measles, and when I had reassured the father and mother, we went to the living room for a cup of coffee. During our conversation, Mrs. Smith stated that they had just come from a large Eastern city where for each illness they had engaged the services of a specialist. At the time of my call, she thought she probably was pregnant, having missed two periods, and her husband's ulcers were acting up, but they hadn't yet chosen the appropriate specialists to manage those conditions. She then asked me why I was in general practice. After only a moment of stunned silence, I explained that I am interested in *complete family care*—that Stevie's measles could affect Mrs. Smith's pregnancy, as well as disturbing the sleep of both his parents; that Mr. Smith's ulcers could affect the diet and routine of the entire family; and that most important to me was the feeling that the doctor should be a friend to each individual family member, and should make every effort to merit the trust and confidence of the entire family.

Driving home, I was amazed at my feeling of warmth and self-satisfaction, and I was wryly amused that it should have taken a house call in the middle of the night, occasioned by a case of measles, to make me clarify my objectives in being a general practitioner. I then repeated to myself, "May He grant us a quiet night and a perfect end."

Postgraduate Conference at Burlington

A well-planned half-day program has been scheduled for Wednesday, October 24, at the Burlington Hotel, in Burlington, under the co-sponsorship of the Iowa Chapter of the American Academy of General Practice and the Des Moines County Medical Society. Burlington is on daylight-saving time, and the first speaker is scheduled to begin at 2:00 p.m. A social hour and dinner are scheduled for 6:30, following the scientific program.

Following are the speakers and their topics:

Jack P. Whisnant, M.D., Mayo Clinic: "Diagnosis and Current Therapy of Epilepsy"

R. L. Linscheid, M.D., Mayo Clinic: "Tenosynovitis of the Hand and Wrist" and "Soft Tissue Injury About the Knee"

Edwin R. Levine, M.D., Chicago: "Positive and Negative Pressure Breathing" and "The Treatment of Emphysema and Bronchiectasis"

Five hours of Category I credit.

Half-Day Meeting at Red Oak

Physicians in western Iowa should keep Thursday, November 1, open, in the expectation of attending a half-day symposium at the Country Club in Red Oak, which is to be co-sponsored by the Iowa Chapter of the American Academy of General Practice and the Iowa Division of the American Cancer Society.

Dr. Eugene F. VanEpps, head of radiology at S.U.I., will speak on "Lesions of the Stomach" and on "Pain and Limp in Young Children." Dr. Don R. Miller, an associate professor of surgery at the University of Kansas, will discuss "Carcinoma of the Stomach" and "The Treatment of Varicose Veins." A third speaker and his topics are to be announced later.

Northeast Iowa Clinical Conference

The Black Hawk County Medical Society and the Iowa Chapter of the American Academy of General Practice will co-sponsor the Northeast Iowa Clinical Conference, at the Masonic Temple, Waterloo, on Thursday, October 11, 1962. In addition to the scientific program, starting at 9:30 a.m., there will be a schedule of entertainment for the ladies, and a dinner and dance will conclude the day's activities.

Following is a list of the speakers and their topics:

A. J. Bianco, Jr., M.D., Mayo Clinic: "Fractures of the Tibia"
Edward R. Woodward, M.D., University of Florida: "Gastric Physiology as Affected by Surgery"
Walter M. Kirkendall, M.D., S.U.I.: "Renal-Vascular Hypertension: Incidence, Detection and Treatment"
Harry M. Nelson, M.D., Wayne State University: "Diagnosis and Treatment of Early Pelvic Malignancies"
Edwin R. Levine, M.D., Chicago: "Treatment of Emphysema With I P P BENNETT"
Richard L. Jenkins, M.D., S.U.I.: "Development and Pathology of Child-and-Parent Relations"

Five hours of Category I credit.

Help Asked in Farm-Accident Studies

The help of Iowa physicians is being sought in two farm-accident studies now being conducted by the Institute of Agricultural Medicine at the State University of Iowa College of Medicine. Agricultural Safety Engineer L. W. Knapp, who is directing both projects, says that by reporting farm accidents to the Institute and providing information to Institute field investigators, physicians can be of immeasureable help in the studies.

One study is a statewide investigation of farm accidents attributed to power take-off attachments of the modern farm tractor. The Institute is gathering information on the number of accidents attributed to this source, the manners in which they occur, the extents of the injuries inflicted and the blames attributable to the victims' attitudes, work methods, physical limitations and knowledge of the equipment.

When the Institute receives a report of an accident involving the power take-off, Larry Piercy, an agricultural safety engineer serving as field investigator, goes to the scene for interviews with the victim, the witnesses and the physician. A complete record of the accident and photographs of the equipment involved are brought back to the Institute for analysis.

The second study is being conducted in six eastern Iowa counties—Muscatine, Washington, Johnson, Cedar, Linn and Iowa. This intensive one-year Rural Family Accident Survey is aimed at compiling statistical and other information on as many farm-family accidents as possible. Physicians in the six-county area are urged to report any such injuries that have involved lost work time or have been disabling in any way. Data gathered in the survey will provide a picture of the most frequent types of accidents, their causes, and possible ways of preventing them.

The latest figures compiled by the National Safety Council show that of the 13,800 workers killed on the job in all industries in 1960, about 3,300 were killed in farm work—the highest number of deaths in any major industry. (When the rate of fatalities per 100,000 workers is considered, farming ranks third behind the mining and construction industries.) Thus, although farmers make up only six or seven per cent of the working force in the nation, they account for almost 25 per cent of the on-the-job fatal accidents. Farmers also sustained some 290,000 disabling injuries in their work (including job deaths), or about 15 per cent of the total number of disabling accidents that occurred in all industries. Accidents in farm homes in 1960 caused 2,600 deaths and 390,000 disabling injuries.

Three More Postgraduate Courses At S.U.I.

RADIOLOGY

(Sponsored by the S.U.I. Department of Radiology and the Iowa Radiological Society)
Room E-405, University Hospitals

SATURDAY, OCTOBER 13, 1962

8:30 Registration
9:00 Artificial Joints in Rheumatoid Hands
A. E. Flatt, M.D., S.U.I.
9:25 Gas in the Portal Venous System
R. G. McCandless, M.D., S.U.I.
The Common Mesentery
B. J. Broghammer, M.D., S.U.I.
Congenital Absence of the Pericardium
H. W. Wiggins, M.D., S.U.I.
9:40 Neuroradiological Potpourri
E. F. Van Epps, M.D., Professor and Head of Radiology, S.U.I.
10:15 A Principle of Laminography
J. G. Baron, M.D., Head of Radiology, VA Hospital, Iowa City
10:35 Incidence and Diagnosis of Diastematomyelia
G. J. Roller, M.D., S.U.I.
Results of Preoperative Irradiation of Lung Neoplasms
E. J. McLaughlin, M.D., S.U.I.
Sigmoid Volvulus in a Patient Seven Months Pregnant
E. Hierschbiel, M.D., Mercy Hospital, Iowa City
10:50 Studies of Renal Function by I-131 Renograms
D. A. Culp, M.D.
11:15 Discussion
11:30 Lunch
12:30 Idiopathic Adrenal Calcification in Infants and Children
R. G. McCandless, M.D.
Radiographic Characteristics of Meningiomas
F. D. Lawson, M.D., S.U.I.
Esophageal Varices: A Method of Demonstration
G. M. Wyatt, M.D., Head of Radiology, Mercy Hospital, Iowa City

Rapid Cholecystography
H. W. Fischer, M.D., S.U.I., and A. F. Schroeder, M.D., S.U.I.
1:10 Carcinoma of the Thyroid and I-131 Levels in Milk
H. B. Latourette, M.D.
1:30 Discussion
2:00 Film Session (Registrants are requested to bring interesting films for discussion.)
3:00 Business Meeting
Iowa Radiological Society

There is no registration fee for members of the Iowa Radiological Society. The fee for non-members will be $10.00. The Iowa Chapter of the American Academy of General Practice will allow 4½ hours of Category I credit for this course. Advance registration is requested.

INSTITUTE ON ABNORMAL NEWBORN—PEDIATRIC, OBSTETRIC, AND NURSING ASPECTS

(Sponsored by the S.U.I. Departments of Pediatrics and Obstetrics and Gynecology, the College of Nursing and the Division of Maternal and Child Health of the State Department of Health)
Room E-331, Medical Amphitheater

WEDNESDAY, NOVEMBER 7

8:45 Introductory Remarks
Madelene Donnelly, M.D., Director of the Division of Maternal and Child Health, State Department of Health
9:00 Movie—"Year of Birth"
9:30 Etiological Factors in Production of the Abnormal Child
Heinz Berendes, M.D., Chief, Perinatal Research Branch, Collaborative and Field Research, National Institute of Neurological Diseases and Blindness, Bethesda, Maryland
10:00 Obstetrical Management of Abnormal Labor and Delivery
William C. Keettel, M.D., Professor and Head of Ob. and Gyn., S.U.I.
10:45 Nurse's Role in Abnormal Labor and Delivery
Anna E. Overland, R.N., S.U.I.
11:00 Management of the Abnormal Newborn
Pediatrician's Role
Donal Dunphy, M.D., Professor and Head of Pediatrics, S.U.I.
Nurse's Role
Joyce Robertson, R.N., S.U.I.
11:30 Early Recognition of the Damaged Child
Mentally Defective
Robert B. Kugel, M.D., S.U.I.
Neurologically Handicapped
John C. MacQueen, M.D., S.U.I.
12:00 Management of the Damaged Child—Panel
Ray R. Rembolt, M.D., S.U.I., Chairman
Heinz Berendes, M.D.
Lee Forrest Hill, M.D., Des Moines
Robert B. Kugel, M.D.
John C. MacQueen, M.D.

Program for Physicians

12:45 Lunch—Doctors' Dining Room
1:45 Tour of the Hospital School
2:30 Tour of the Child Development Clinic
3:30 Maternal Infections
Charles A. White, M.D., S.U.I.
4:00 Drugs in Pregnancy
C. P. Goplerud, M.D., S.U.I.
4:30 Questions and Answers
7:00 Dinner—Iowa Memorial Union

Program for Nurses

1:45 Nurse's Role in Emergencies Occurring During Labor and Delivery
Doris Wilkinson, R.N.
2:15 Nurse's Role in Emergencies in the Nursery
Leona Johnson, R.N., Nurse Consultant in Maternal and Child Health, State Department of Health, Des Moines
2:45 Nursery Equipment—Its Use and Abuse
Sharon M. North, R.N.
3:30 Tour of the Hospital School
4:15 Tour of the Child Development Clinic
7:00 Dinner—Iowa Memorial Union

THURSDAY, NOVEMBER 8

CONGENITAL ANOMALIES THAT OCCUR IN THE NEONATE

9:00 Obstetrician's Role
Leo J. Dunn, M.D., S.U.I.
9:15 Pediatric Aspects—Diagnosis and Management
Robert D. Gauchat, M.D., and Pediatric Staff, S.U.I.
Surgical Diagnosis and Management
Robert T. Soper, M.D., S.U.I.
Cleft Palate Diagnosis and Management
William C. Huffman, M.D., S.U.I.
11:30 Types of Familial Congenital Anomalies and Family Counseling—Panel
Heinz Berendes, M.D.
Lee Forrest Hill, M.D.
James P. Jacobs, M.D., S.U.I.
Hans Zellweger, M.D., S.U.I., Chairman

Registration fees for this conference are $15.00 for physicians and $10.00 for nurses. Tickets for the luncheon and dinner are included in the fee. Housing accommodations are available and should be requested with advance registration. The Iowa Chapter of the American Academy of General Practice will allow 7 hours of Category I credit.

OTOLARYNGOLOGY FOR THE GENERAL PRACTITIONER

(Sponsored by the S.U.I. Department of Otolaryngology and Maxillofacial Surgery)
Room E-405, University Hospitals

FRIDAY, NOVEMBER 16

8:45 Welcome
Dean Robert C. Hardin, S.U.I.
9:00 The Dizzy Patient
Ronald Hinchcliffe, M.D., S.U.I.
9:40 External and Middle Ear Problems
James A. Donaldson, M.D., S.U.I.
10:40 The Control of Hemorrhage in the Ears, Nose and Throat
Leslie Bernstein, Ch.B., S.U.I.
11:30 Acute Sinusitis
William C. Huffman, M.D., S.U.I.
12:00 Dentistry for the Physician
William H. Olin, D.D.S.
12:45 Luncheon—Doctors' Dining Room
1:45 Oral Lesions
Dean M. Lierle, M.D., Professor and Head of Otolaryngology and Maxillofacial Surgery, S.U.I.
2:45 Diagnosis and Treatment of Otosclerosis
James A. Donaldson, M.D.
3:30 Causes and Treatment of Nasal Obstruction
William C. Huffman, M.D., S.U.I.

4:15 Film—"Tracheotomy—Techniques, Indications and After Treatment."

Tickets for the luncheon are included in the registration fee of $5.00. A limited number of tickets for the Iowa-Michigan (Dad's Day) game on the 17th are available to registrants in this course. Include payment ($5.00 per ticket) with advance registration. The Iowa Chapter of the American Academy of General Practice will allow 6½ hours of Category I credit for this course.

Registration and requests for further information should be sent to John A. Gius, M.D., Director of Postgraduate Medical Studies, S.U.I. College of Medicine, Iowa City.

Fall Conference for County Medical Society Officers and Other Representatives*

Friday, October 5, 1962
Grand Ballroom—Savery Hotel
Des Moines, Iowa

9:00 a.m. Registration

10:00 a.m. WELCOME
George H. Scanlon, M.D., Iowa City
President, Iowa Medical Society

10:05 a.m. IMS SERVES THE PUBLIC
S. P. Leinbach, M.D., Belmond
Chairman, Board of Trustees, Iowa Medical Society

10:15 a.m. IN THE PUBLIC INTEREST
Medical Careers
Walter M. Block, M.D., Cedar Rapids
Linn County Medical Society
Newspaper Advertisements
Charles N. Hyatt, M.D., Corydon
Wayne County Medical Society
Public Health Forums
Arthur H. Downing, M.D., Des Moines
Polk County Medical Society
Oral Polio Vaccine Clinic
John M. Baker, M.D., Mason City
Cerro Gordo County Medical Society

10:45 a.m. ELECTION DAY—NOVEMBER 6
Medicine's Role
Bernard Harrison, Chicago, Illinois
Director, Legislative Department
Legal & Socio-Economic Division
American Medical Association
Political Action
Joe D. Miller, Chicago, Iliinois
Executive Director
American Medical Political Action Committee (AMPAC)
Lawrence O. Ely, M.D., Des Moines
Chairman
Iowa Physicians Political League (IPPL)

11:15 a.m. 60TH IOWA GENERAL ASSEMBLY—JANUARY 14
State Legislative Report
H. E. Wichern, M.D., Des Moines
Chairman, IMS Legislative Committee
Robert B. Throckmorton, Des Moines
IMS Legal Counsel

11:45 a.m. M. A. P. (Michigan Association of the Professions)
Hugh Brenneman, Lansing, Michigan
Executive Director—M. A. P.

12:00 noon SPECIAL REPORTS RE:
Osteopathy (MD-DO Developments in Iowa)
John M. Rhodes, M.D., Pocahontas
Chairman, IMS Osteopathic Committee
Pharmacy (Physician-Pharmacist Relations)
C. E. Radcliffe, M.D., Iowa City
Chairman, IMS Judicial Council

12:30 p.m. LUNCHEON
Guest Speaker: Kenneth Haagensen, Milwaukee, Wisconsin
Special Assignment, Marketing Services & Public Relations
Allis-Chalmers Manufacturing Company
"How Do you Expect to Rate If You Don't Communicate?"

2:00 p.m. PREPAYMENT. . . .
We Can Meet the Challenge—If . . .
Edwin J. Faulkner, Lincoln, Nebraska
President, Woodmen Accident and Life Company
The Role of Blue Shield in Prepayment
Earl C. Lowry, M.D., Des Moines
President, Iowa Medical Service
Assuring the Proper Use of Prepaid Health Insurance—The Pennsylvania Story
Mr. Richard Sloan, Pittsburgh, Pennsylvania
Administrative Assistant
Pennsylvania Medical Society
A Blue Shield Usual & Customary Fee Program Is Workable
Charles H. Crownhart, Madison, Wisconsin
Secretary, State Medical Society of Wisconsin
General Manager, Wisconsin Physicians Service
"65" Plans—(Connecticut-Massachusetts-New York)
Joe W. Peel, Chicago, Illinois
Counsel, Health Insurance Association of America

3:30 p.m. WHAT IS THE FUNCTION OF AN INSURANCE DEPARTMENT?
John M. Manders, Des Moines
Associate Counsel
Insurance Department of Iowa

3:40 p.m. RELATIONSHIP OF THE MEDICAL DEPARTMENT OF A LIFE INSURANCE COMPANY WITH THE PRACTICING PHYSICIAN
W. O. Purdy, M.D., Des Moines
Medical Director
Equitable Life Insurance Company of Iowa

* County society presidents, vice-presidents, secretaries, treasurers, delegates, alternate delegates, deputy councilors, legislative contact men, Blue Shield contact men, and legislative and public relations committee chairmen are urged to attend. Comparable officers and committeemen of the IMS are also asked to be present.

Iowa Association of Medical Assistants

Making Appointments

One of the most important duties that the doctor delegates to his assistant is the scheduling of appointments. In many offices, all activity revolves around the appointment book. It can be an overly stern taskmaster, or it can be an effective mechanism in making the office run smoothly. Its role depends upon the skill of the medical assistant in using it, and upon the degree to which the doctor abides by it.

There are no uniform rules for making appointments which must be observed in every medical office, but there are some general principles to be followed. Here are a few of them:

1. Gear the appointment system to the practice and the preferences of the doctor. It is important that you have a definite understanding with him regarding the hours that he wishes to spend in seeing patients at his office, and approximately how much time he wants to spend on a complete examination, on a follow-up call, on treatments of various sorts, and for each of the other procedures that are peculiar to his type of practice.

2. Allot time to patients on the basis of their individual needs. Your doctor may reserve mornings for treatments and afternoons for examinations, or set aside one afternoon a week for pediatric immunizations, or specify that no appointments are to be made for insurance examinations on half-days. The efficient assistant soon learns which patients prefer late afternoon appointments, or appointments just before lunch which will not conflict with their working hours.

A good assistant also uses her intelligence and her knowledge of the patient in avoiding all wastes of time both for the doctor and for his patients. She schedules a patient who can be cared for by the doctor alone so that the doctor can see him while she is preparing another patient for an examination. A crowded reception room doesn't always mean that the doctor is popular; it may mean just that his assistant is inefficient in scheduling appointments for his patients!

3. Don't overtax the facilities of the office. The intelligent assistant doesn't book one examination immediately following another similar one, if equipment and space are limited. She provides time for cleaning and readying the rooms and equipment.

4. Avoid conflicts in appointments. Unless you are scheduling an appointment for a procedure that you, an assistant, can perform, double booking is poor policy. One patient then must take precedence over another, and someone becomes disgruntled. The only sound systems for scheduling a large number of patients in a given length of time are to plan well or to extend office hours. A good medical assistant must achieve the skill of a train dispatcher. This doesn't mean pushing the schedule to the point where the patient feels he is being denied the amount of the doctor's time that his needs require. Rather, it means utilizing, not wasting time.

Even in a busy medical office, there are priorities. Ordinarily the patient with an appointment gets first consideration. However, an accident victim is not asked to wait until a patient with an appointment has been seen. He is escorted to an examining or treatment room, and is prepared so that the doctor can see him immediately.

The best-planned schedule has to be revised when emergencies occur. If the doctor is to be delayed beyond the time for an appointment because of surgery or a delivery, and if it is possible for you to reach the patient whose appointment cannot be kept, you should telephone him before he starts for your office. He will appreciate your thoughtfulness. At the same time, you can schedule a new appointment for him.

If the doctor is called out of the office to care for an emergency, or is delayed for a short time in keeping appointments, the waiting patients should be told the reason for the delay and thanked for their forebearance. In most cases they will be very understanding, since they realize that the doctor would give them a similar preference if their need were as urgent as is that of the patient whom he is attending.

The medical profession frowns upon any commercial advertising designed to attract patients. The doctor's reception room is his "show room," however, and the medical assistant who remains courteous and efficient at all times is tangible evidence of the doctor's efficiency and desire to be of service. The assistant must be constantly mindful of her role in preserving good will for the medical profession as a whole, and in conserving her employer's time and energy.

—Helen G. Hughes

COUNTY MEDICAL SOCIETY OFFICERS

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Monroe	H. J. Richter, Albia	D. N. Orelup, Albia	D. N. Orelup, Albia
Montgomery	Oscar Alden, Red Oak	E. L. Croxdale, Villisca	H. E. Bastron, Red Oak
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Wapello	R. A. Hastings, Ottumwa	R. P. Meyers, Ottumwa	L. J. Gugle, Ottumwa
Warren	Amalgamated With Polk County		
Washington	E. D. Miller, Wellman	E. J. Vosika, Washington	G. E. Montgomery, Washington
Wayne	K. R. Garber, Corydon	C. N. Hyatt, Corydon	C. N. Hyatt, Corydon
Webster	J. R. Kersten, Fort Dodge	C. L. Dagle, Fort Dodge	C. J. Baker, Fort Dodge
Winneshiek	J. A. Bullard, Decorah	E. F. Hagen, Decorah	E. F. Hagen, Decorah
Woodbury	E. H. Sibley, Sioux City	R. C. Larimer, Sioux City	D. B. Blume, Sioux City
Worth	R. L. Olson, Northwood	W. G. McAllister, Manly	C. T. Bergen, Northwood
Wright	A. L. Pitcher, Belmond	R. F. McCool, Clarion	S. P. Leinbach, Belmond

Physicians and Coaches Must Work Together More Closely in

Preventing or Minimizing Athletic Injuries

The especially large number of deaths this fall among football players, in view of the fact that the season is far from finished, has made physicians aware as never before that they must cooperate more fully with school officials, coaches and students in making sports safer. Doctors without exception applaud President Kennedy's campaign for youth fitness, and nearly every one of them is an avid baseball, basketball and football fan. Each doctor, indeed, wants his home teams to win all of their games, but above all he wants none of the boys to be hurt.

The superintendents, the coaches and the youngsters' parents agree completely with the doctors in all of those attitudes and objectives, and thus their working together more closely should be the easiest thing in the world to arrange. Moreover, the Committee on the Medical Aspects of Sports,* of the American Medical Association, offers a wealth of ideas for making that collaboration as fruitful as possible, and school people and physicians alike may have its materials free of charge, upon request.

PHYSICAL EXAMS MUST BE MADE RIGOROUS

Doctors can do most in helping to prevent disasters of these kinds by screening out the boys for whom bodily-contact games are unduly hazardous. Rather than a cursory procedure, the examination of each youngster should be at least as thorough as that which is given to an applicant for life insurance. In addition, since each boy wants very much to "pass the physical," the doctor should be prepared to probe for the details of his medical history that the young man may wish left in the dark. Only by such means can he be sure of arriving at a sound and objective evaluation of the boy's health status.

The AMA Committee recommends that each prospective player be examined at the start of each season of competition, but certainly no less frequently than once a year, and it provides a model exam form which it urges doctors to fill out for each boy, and to file for future reference.

Physical exam time, since it comes well in advance of the start of competition, provides an opportunity to the physician for seeing to it that the boys' immunizations are up to date. Inoculation against tetanus is of course especially important for sports participants, but protections against diphtheria, smallpox and poliomyelitis are as vital for them as for everyone else.

OTHER PREVENTIVE JOBS FOR THE DOCTOR

When the squad has been screened for physical fitness, the coach starts his conditioning program, and it should be one of the doctor's responsibilities to make sure that it is a gradual process and that enough time is devoted to it. Obviously, conditioning is especially crucial at the start of the football season, first because football is the roughest of our major sports, and second because it starts at the end of the summer, when the weather often is still hot. A number of the fatalities this year have been attributed to heat prostration. The AMA Committee recommends that conditioning exercises occupy a minimum of two weeks.

The doctor can make it a part of his job to see that the players' protective equipment fits well and will do what is expected of it. This again relates particularly to football, though it is also important in baseball and hockey. Helmets that fit unsatisfactorily can pose extra hazards for the players, rather than protecting them from injury. Pads that have been torn loose or ones that were designed for another size of boy can be inefficient to the point of uselessness. For these reasons, "handing down" old uniforms to the "scrubs" is an especially suspect practice.

* Fred V. Hein, Ph.D., Secretary, 535 North Dearborn St., Chicago 10.

Innocently enough, youngsters stumble upon technics of play which they think will give them an advantage over their opponents, but which are dangerous both to themselves and to the other fellows. As an authority on injuries, the physician can assist the coach in discouraging such tactics. One of them is "spearing"—i.e., tackling or blocking head-first, using the recently introduced plastic helmet as a weapon. Many other such tricks have been specifically forbidden in the rules, and no doubt this one shortly will be, but players frequently get the idea that their objective should be to break the rules without getting caught. Whenever the doctor helps to disabuse youngsters of such notions and to inculcate true sportsmanship, he performs a highly valuable service.

Doctors can be helpful by pointing out to school officials and students that a number of popular theories about preventing disease have been proved wrong. Many people still think that athlete's foot is contagious, in the generally accepted sense, and that bactericidal foot-baths must be insisted upon and the floors of locker rooms and shower stalls must be scrubbed with strong chemicals to kill the spores. Such measures can do more harm than good to the youngsters' feet. Similarly, many people still think that the regular ingestion of vitamin tablets will help prevent colds, and that amphetamines, sulfa drugs and antibiotics, though available only on prescription, can do no one any particular harm. These ideas should be dispelled.

In some instances it may be necessary for the physician to help persuade boys to make proper use of protective devices. The newly-required mouthpieces designed to protect football players' teeth interfere with speed to some extent, and quarterbacks are especially tempted to secrete them somewhere or other, rather then to keep them in place. Among other benefits, the mouthpiece is said to help prevent concussion from a blow to the jaw. Incidentally, it is a worthwhile precaution to have a dentist make sure that each boy's mouthpiece fits him.

ASSURING ADEQUATE CARE FOR INJURED PLAYERS

Besides the preventive measures that have been pointed out thus far, there are several steps that the physician should take in anticipation of the injuries that will inevitably occur. He might well teach the rudiments of first-aid to the players, for when one of their teammates is hurt, they are sure to be nearer him than either he or the coach is. Most of all, perhaps, they need to be told what *not* to do, lest they try to help a boy to his feet after he has broken a leg, or to move one whose back has been hurt. First-aid skills, of course, are good ones for anyone to learn, but for athletes they may be particularly important. In addition, the doctor should satisfy himself that necessary first-aid supplies and a stretcher are at the football field, baseball diamond or basketball court during all practice sessions and games, and that transportation will always be available for taking an injured player to the hospital.

Most importantly, the team physician should be present at all games, or should arrange to have another doctor take his place there. When an injury has occurred, he should accompany the coach onto the playing surface, and he should have the deciding vote on whether a previously injured player may return to competition. When appropriate, he should urge the coach to take the long view—that a boy's future benefit to the team outweighs his service in the current or upcoming game. In the treatment of an injured boy, he of course will do nothing other than what is immediately necessary before calling in the patient's family physician.

Ideally, perhaps, the doctor should attend practice sessions as well as games, but he has too many other duties and, fortunately, his presence is less essential at practices. Injuries can take place during intrasquad scrimmages, and such contests far outnumber the interscholastic games, but a boy who has been hurt during practice is far less likely to be mishandled by his teammates in such situations. Under the stress of a regular game, the boys are anxious to keep their injured teammate in the game, for the help they hope he can give them, or they are tempted to bundle him off the field precipitously, lest the spectators become impatient at an over-long delay. Nevertheless, the doctor should constantly keep the school informed of his whereabouts during practice periods, or leave word as to which other doctor is available to come in his place.

CONFERENCES FOR PHYSICIANS AND COACHES

So that physicians and coaches may have the latest information on the prevention and management of athletic injuries, medical societies in the more populous counties of Iowa are urged to give some thought to the conducting of conferences on the medical aspects of sports. With this in mind, the officers and other members of those organizations might make a point of attending one or another of the conferences sponsored two or more times each year in various parts of the country by the AMA Committee. The next one will be held in Los Angeles on November 25, 1962, in conjunction with the interim meeting of the AMA.

At the 1961 annual meeting of the Iowa Medical Society, a session on athletic injuries attracted school people as well as physicians from throughout the state and was enthusiastically received. In Wisconsin, for several years, regional meetings of the type suggested here have proved highly worthwhile, both to physicians and to coaches, and there is every reason to believe that, though indirectly, the youth of Iowa would benefit greatly from ones held in this state.

STATE DEPARTMENT OF HEALTH

Edward D. Zimmer
COMMISSIONER

Summaries of the Sabin Oral Poliomyelitis Vaccines Available From the Three Processing Companies

The following summaries have been drafted in an attempt to answer many questions regarding the three Sabin oral poliomyelitis vaccines now on the market. Nurses and other persons frequently ask: What is the vaccine? How is it administered? How is it stored? What is the dosage? In an attempt to answer these questions, we have studied literature and held conferences with representatives from each of the three companies producing the vaccine. This summary is in no way an attempt to evaluate any of these vaccines.

As of August, 1962, the three companies licensed to manufacture the Sabin oral poliomyelitis vaccine are: Lederle Laboratories, Pearl River, New York; Pfizer Laboratories, Brooklyn, New York; and, Wyeth Laboratories, Philadelphia, Pennsylvania. The three types, I, II and III, are packaged separately and are given at different times. At present it is recommended that they be given in the following order: Type I, first; Type III second; and Type II last.

THE LEDERLE VACCINE

This vaccine uses attenuated live poliomyelitis virus in a sorbitol liquid sugar base. Two different package units are being offered. One is the 2 cc. vial containing one single 2 cc. dose ready to swallow. The other is the 100-dose vial of 200 cc., also ready to swallow. The latter package contains a 2 cc. dropper, and is intended for use in mass programs. The vaccine is stable for one year at temperatures under 32° F. It is *not* shipped frozen, however, and may be stored for short periods in a refrigerator at temperatures not exceeding 50° F. The dosage is 2 cc.

THE PFIZER VACCINE

This also uses attenuated living poliomyelitis virus. It is packaged (a) premixed in a 10-dose vial, or (b) dry in a 100-dose vial to which a diluent is added when it is about to be used. Droppers are provided with both package types. This vaccine is shipped frozen and can be stored in the freezing compartment in a standard refrigerator for periods up to one year. The preferred storage temperature is 32° F. or lower. After the package has once been thawed for use, it must never be refrozen. The once-thawed package may be kept at temperatures no higher than 50° F. for periods up to seven days. The dosage is three drops administered on small-size sugar cubes, or in enough distilled water, simple syrup or other material to facilitate swallowing.

THE WYETH VACCINE

The Wyeth oral poliomyelitis vaccine is a suspension of the attenuated live virus of poliomyelitis in Hank's balanced salt solution. It also is packaged in two different forms. The first is a 1 cc. vial containing 10 doses. The second is a 10 cc. vial containing material adequate for 100 doses. Packages are equipped with droppers. It is shipped frozen, packed in dry ice, and is stored frozen. The freezing compartment of a household-type refrigerator is adequate for storage. Storage under these conditions may extend to periods not in excess of one year. Once the vaccine has been thawed, it must not be refrozen and must be used within seven days. Dosage is two drops administered on small-size sugar cubes, or in enough distilled water, simple syrup or other material to facilitate swallowing.

SUGGESTED IMMUNIZATION PROGRAM

The U. S. Public Health Service suggested immunization program for the Sabin vaccine is as follows:

A. *INFANTS,* given the first feeding between the ages of six weeks and three months—

Dose	*Type*	*Interval From Previous Dose*
First	I	—
Second	III	Six weeks
Third	II	Six weeks
Fourth	I, II, & III	Six months or longer

B. *OTHERS,* including group program use—

Dose	*Type*	*Interval From Previous Dose*
First	I	—
Second	III	Six weeks
Third	II	Six weeks

The Iowa State Department of Health definitely believes that no one series of immunization produces lifetime or long-term immunity. For those

who have had no poliomyelitis immunizations other than the Sabin, we definitely recommend a Sabin booster a year after completion of the series, just as we recommend a Salk booster for the Salk poliomyelitis immunizations.

Some Basic Suggestions for Large-Scale Immunization Clinics

Many Iowa counties began Sabin oral poliomyelitis immunization clinics during the late winter or the early spring of this year, and most of the remaining Iowa counties are planning similar clinics for the fall months. Planning stages for these fall clinics vary. Some counties, such as Polk, started the planning in March and have their programs well organized. Many counties still in the initial planning stages have many questions about the organization and conduct of the program.

We are reminding all counties from which inquiries come regarding the program that although the Sabin vaccines are given by mouth, they are still immunizations against disease, and as such are definitely medical procedures. We insist that any immunization program, regardless of its size, must be approved, sponsored and directed by the local medical society. This group, or a committee representing it, should be concerned with such things as which vaccine is to be used. It should also scrutinize any publicity very carefully to make certain that every bit of information given out is medically accurate. Physicians as well as nurses should be present at all clinics.

Many Iowa counties are planning to start their fall clinics in October. October 13 has already been set in quite a few counties as the date for the first clinic. We are suggesting that as nearly as possible other counties use that same date. In this way, one large educational program—posters, newspaper material, radio and television announcements—can be used for an entire area. Several counties that have already had programs have reminded us particularly of the value of posters. They advise getting as many posters in as many places as possible, throughout the area.

The number and size of the committees will depend to some extent upon the number of persons who may be expected to receive the immunizations. In most counties, the general committee will probably want to form at least six sub-committees. These sub-committees might be as follows: publicity, medical committee, procurement committee, records, clinic set-up and traffic.

A decision as to the number of persons who can be expected to attend the clinic may be a bit difficult to reach. Certain counties are simply planning to give the vaccine to 80 per cent of the population. Cass County recently held its first clinic. Over 13,000 people, or about 90 per cent of the county's population, attended. Some counties adjacent to areas in the state where clinics have already been given may have reason to feel that a large per cent of their people have already received the immunizations. Again, border counties may find Sabin oral vaccination programs have not been planned in their neighboring counties across the state line. These counties may expect large numbers of non-residents to attend their clinics.

As to records, the health department conducting the program and the patient receiving the vaccine should have records of their vaccinations given. For this purpose, some counties are setting up a two-part card to serve both as a registration card and as a vaccination record. These are printed with space for the patient's name on both halves of the card. There is also space for recording the administration of Types I, II, and III vaccines and a booster on both sections of the card. Since numbers of persons attending the clinics are being estimated by the thousands, and since clinics are usually held for periods of only a few hours, it is necessary to finish serving everyone within the time allotted. A well-organized and well-staffed clinic can get 400 people through each line during each hour of work. For clinics such as this, separate tables are set up for infants, since it takes a mother with a small child much longer to give him his vaccine than it does for others to take it. Each infant table should be staffed by two nurses.

Since most of the people coming to the clinic will come by automobile, the clinic site chosen must be such as to accommodate the automobile traffic and to provide parking space for several hundred cars at any one time. If the high school gymnasium has parking facilities near it, it may be the best location for the clinic. The building itself should allow persons to enter from one side, have their feedings of vaccine and leave through exits on another side of the building. At no time should traffic lines through the clinic be permitted to double back on themselves. Check desks should be set up at the heads of all lines to make sure that registration cards are properly filled out before the person reaches the desk where the vaccine is given. At the vaccination desk, the cards should be stamped to show the type of vaccine administered.

Funds for the support of these clinics must be obtained locally. The State Department of Health's budget for biologics, as set up by the State Legislature, is too meager to permit it to provide vaccine.

CONCERNING THE RECENT FUROR

Since it is the policy of the State Department of Health to follow the advice of the best consultants in the field, we are recommending either (1) that the procedures as outlined in the following telegram from the Surgeon General's office be followed; or, (2) that clinics be postponed until the problem regarding Type III may be solved. With the winter season coming upon us, there need be no hurry. Also, it is well to remember

that the Salk vaccine has been and still is a good vaccine.

"The special oral poliomyelitis vaccine advisory committee has met for the third time today and reviewed the evidence of the occurrence of cases of poliomyelitis in association with the administration of oral poliomyelitis vaccines in non-epidemic areas during the current year. At the time of the second meeting August 16, only twelve officially reported cases were on record and information concerning many of these cases was quite incomplete. Since then four additional cases have been reported and more detailed data are available on all of these. Of this total of sixteen officially reported cases, two have occurred within 30 days of Type I vaccine; one has followed Type II vaccine and thirteen have followed Type III vaccine. Detailed review of the clinical epidemiological and laboratory data related to these cases by the committee has been made. One of the Type I associated cases has fully recovered without residual paralysis and the diagnosis remains in doubt. The Type II associated case was found to be caused by a Type III virus and thus was a coincidental case unrelated to the vaccine. Of the thirteen Type III associated cases, eleven were found by the committee to have paralytic disease fully consistent with the diagnosis of poliomyelitis, and two are considered doubtful cases or unrelated to Type III virus.

"All of the eleven confirmed cases have occurred among adults and the intervals between vaccine administration and onset of disease have been compatible with the expected incubation period of seven to thirty days. Only two of these eleven cases had received inactivated poliomyelitis vaccine. It must be recognized that over the course of nine months in the experience of the whole country, during which approximately 40,000,000 doses of oral vaccine have been administered, some purely coincidental cases of poliomyelitis can be expected to have occurred. The single accepted case following use of Type I vaccine is wholly compatible with such coincidental occurrences. The eleven confirmed cases associated with Type III vaccine cannot all be assumed to be coincidental. Therefore, the committee believes that there is sufficient epidemiological evidence to indicate that at least some of these cases have been caused by Type III vaccines. The level of this risk can only be approximated but clearly is within range of less than one case per million doses. Since the cases have been concentrated among adults the risk to this group is greater whereas the risk to children is exceedingly slight or practically nonexistent. The committee therefore recommends that the use of Type III vaccine in mass campaigns be limited to pre-school and school-age children. Plan for mass programs using Type I and Type II vaccine is still indicated for use among adults at high risk groups which include tourists to hyperendemic areas and persons residing in epidemic areas."

Changes of Regulations Regarding Contacts of Cases of Scarlet Fever

The Iowa State Board of Health at its July 10, 1962, meeting approved removal of the July 1, 1954, ruling requiring certain contacts (school pupils or school employees and persons employed as food handlers) of patients with scarlet fever to have prophylactic doses of sulfonamides and/or antibiotics 48 hours before they are permitted to return to school or to their work as food handlers.

The State Department of Health requested removal of this requirement in an attempt to keep its rules and regulations regarding communicable disease in agreement with the communicable disease rules and regulations suggested by the American Public Health Association in its manual, "Control of Communicable Diseases in Man (1960)," and with the American Academy of Pediatrics' Red Book, "Report of the Committee on the Control of Infectious Diseases (1961)." Although these manuals are produced by groups lacking official status, through years of use they have come to serve as standard guides to official state agencies.

State Department of Health rules and regulations are in all instances minimal. Local boards of health may, as occasion demands, set up requirements beyond the state's minimum requirements, but may not establish any requirements lower than the state's minimum. School boards, because of lack of medical (and nursing) supervision of cases and contacts of scarlet fever in certain areas of the state, may request their local boards of health to set up restrictions in excess of those imposed by the state. Similarly, local health departments may at times have cause to set up more strict requirements for food handlers.

Morbidity Report for Month Of August, 1962

Diseases	1962 Aug.	1962 July	1961 Aug.	Most Cases Reported From These Counties
Diphtheria	0	0	0	
Scarlet fever	77	88	44	Jefferson, Johnson, Polk
Typhoid fever	0	0	1	
Smallpox	0	0	0	
Measles	48	125	63	Buena Vista, Clay, Scott
Whooping cough	3	6	1	Dubuque
Brucellosis	10	8	10	Dubuque
Chickenpox	13	48	20	Clay, Scott, Webster
Meningococcic meningitis	0	1	0	
Mumps	78	64	65	Black Hawk, Boone, Clay, Scott
Poliomyelitis	0	0	6	
Infectious hepatitis	25	56	95	Black Hawk, Buena Vista, Scott, Woodbury
Rabies in animals	19	27	32	Clinton, Davis, Sac
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	1	0	
Tuberculosis	32	23	25	For the state
Syphilis	87	68	83	For the state
Gonorrhea	103	106	109	For the state
Histoplasmosis	0	1	1	
Food intoxication	4	0	0	Linn, Lucas
Meningitis (type unspecified)	0	0	12	
Diphtheria carrier	0	0	0	
Aseptic meningitis	1	0	0	Polk
Salmonellosis	2	6	5	Dubuque, Linn
Tetanus	1	0	1	Pocahontas
Chancroid	0	1	0	
Encephalitis (type unspecified)	0	0	0	
H. influenzal meningitis	0	1	0	
Amebiasis	0	7	3	
Shigellosis	0	0	2	
Influenza	3	0	0	Polk

Woman's Auxiliary News

Food Quackery

Calories *do* count, and whether they come from bourbon or butter makes little difference to one's weight, the chairman of Harvard University's department of nutrition told the Woman's Auxiliary to the AMA at its convention in Chicago last June. Dr. Frederick J. Stare said that "nutrition nonsense" to the tune of $1 billion a year is being foisted on the American public. "It is sad to report," he declared, "that probably half of the nation's major book houses have succumbed to the lure of health-food publishing. Health quacks display a curious ambivalence, seeking to ally themselves with medical science and at the same time to condemn it.

The most important objective in nutritional education at the present time is to make the public aware of the dangers posed by this nonsense. Health foods are sold in special health stores in the larger cities. In many instances the authors of these books are promoting such special foods or vitamins, and are associated with one or more such stores. It is a lucrative business, and the effects on the consumer are the least of the promoters' concerns. Theirs is just another gimmick to make money, and a lot of gullible people are looking for an easy way to stay slim. The only way to lose weight and stay slim is to eat less food!

What is nutrition? It is the science of food and its relation to health. Vitamins, proteins, and minerals such as zinc are needed for the growth of hair, and for the expiration of carbon dioxide in the respiratory process. Fluorides are needed for the making of enamel in the teeth. Carbohydrates, protein, and some fats are needed to carry on the functions of the living cells which make up the body. A variety of foods help to provide good nutrition.

CALORIES DON'T COUNT, by H. Taller, is one of the bestsellers on weight reduction. This man's thesis is nonsense. Calories *do* count! Taller's diet permits the patient an unlimited intake of fats and protein, but drastically restricts the intake of carbohydrates. His treatment of the physiology of metabolism does not justify the very drastic diet he recommends. He also recommends that people on his diet consume two capsules of safflower oil before each meal, and he even tells the readers where these capsules may be purchased. In January, the U. S. Food and Drug Administration seized two safflower products, and also copies of the book, and charged Taller with making false statements and misleading claims. But the book is still available at many newsstands. The sad part about all this is that if a patient stayed on the diet over a long period of time, he would have a serious nutritional problem. The safflower oil capsules are ineffective in weight control. In summary, the book is a gross insult to the American public.

"Radio's Pill Pusher," an article in the SATURDAY EVENING POST for June 16, 1962, exposes another self-styled "foremost nutritionist," Carlton Frederick, who has a nationwide radio program carried three times daily, five days a week, called "Living Should Be Fun." His salary for this program: $50,000 a year. He also has published 75,000 copies of EAT, LIVE AND BE MERRY. The FCC has begun an investigation into the Frederick radio programs.

What can the Auxiliary members do to protect the public from these nutritional hoaxes? They can help prevent the radio bombardment on food quackery, by making the managers of their local radio stations aware of the dangers to the public in this type of broadcast. Furthermore, Auxiliary members should support fluoridation of water wherever possible. It cuts down cavities 80 per cent.

Nutrition *is* important. Calories *do* count. Each of us should eat a variety of foods, and advise others to do the same. We should not eat or drink more than we need. Dr. Stare called upon the 82,000 physicians' wives who make up the Auxiliary to "speak up and be forthright" on the problem of food quackery.

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Abolition of Personal Income Taxes

If you like paying personal income taxes and want to go on doing so, then spend no time reading this report. Of course if you believe them to be controversial, perhaps you should know why they might be eliminated. All of us know why we should pay them, but most of us do not know why we should *not*.

Corinne Griffith, a former movie star, is an authority on the abolition of personal income taxes. By way of confession, I must say that I went to see, and not especially to hear her, when she addressed the AMA Auxiliary Convention. Ironically, her speech proved to be more captivating than her appearance, despite the fact that she is very attractive.

Her topic: "Abolish the Individual Federal Income Tax." Ridiculous? Not at all! Impossible? Not if we care! How soon? As soon as we get busy! She gave excellent reasons why the federal income tax, imposed directly on the individual, is wrong.

It is unconstitutional. (She presented proof.)

It is unworkable. (She presented proof.)

It is a wanton waste of our resources. (She presented proof.) Her examples of waste were endless! Some of these were new to me—e.g., we financed (courtesy of the C.I.A.) both sides of a war. We financed "our" side and the enemy's too.

If we allow the income tax to continue, it will destroy free enterprise. In the Defense Department alone, the Hoover Commission found 2,500 business establishments in competition with private business. A later study revealed 19,771 government enterprises with assets totaling 12 billion dollars. The government receives no income tax from these ventures, and they can borrow unlimited money for operating expenses. She named coffee grinding, rope manufacturing, alcoholic beverage distilling, scrap iron and steel working, printing and warehousing. As a group, the federal government's business ventures operate at an annual loss of about 29 billion dollars, Miss Griffith said. Do you know how much a billion dollars is? It is $1,000 a day from 1 A.D., *every* day, until 2800 A.D.

The personal income tax is unnecessary. The government gets 63½ billion dollars a year in taxes, exclusive of personal income taxes. It should be able to struggle along on this. It wastes an amount well in excess of total individual income taxes.

The advantages of abolishing the personal income taxes are manifold. No more withholding taxes would be deducted from a worker's pay. There would not be a second tax levied on dividends. Thirty-two billion dollars would be released for private investment.

Miss Griffith concluded by proposing the repeal of the Sixteenth Amendment and by quoting Abraham Lincoln: "I wish you to remember, now and forever, that it is your business to *rise up and preserve* the union and liberty for yourselves. I appeal to you to constantly bear in mind that not with politicians, not with presidents, not with office-seekers, but with you, is the question—shall the Union and shall the Liberties of this country be preserved?"

—MRS. R. F. NIELSEN

Traffic Safety—Speeding

1. Know and obey speed limits.
2. Adjust your driving to road, traffic, weather and pedestrian conditions.
3. Know how long it takes to stop a car at different speeds, and how varying weather conditions affect mechanical stopping time.
4. Keep a safe distance behind preceding car.
5. Reduce speed when your sight distance is limited—e.g., at hills and curves.
6. Be especially alert at every intersection and railroad crossing.
7. Use special caution at school crossings.
8. Slow down at night, and don't overdrive your headlights.
9. Know the rules regarding entering and leaving freeways, circles and cloverleafs. Remember that freeway driving requires special caution and attentiveness.
10. When transporting a heavy load, or when towing a trailer, reduce speed in relation to weight carried.

Child-Safety Tips

PRE-SCHOOL

1. Clear floors of small objects—buttons, pins, coins—that a toddler can swallow.
2. Guard against tumbles—lock crib rails, have swing gates at both ends of staircases, restrict furniture climbing.
3. Poison-proof your home. Medicine cabinets, kitchen, laundry and general cleaning detergents and fluids should never be within reach of small children.
4. Keep your junior explorer out of reach of "pull-able" items like cords, lamps and tablecloths.
5. Provide toys that can't cut, gouge or be swallowed—no button eyes or wire innards.

SCHOOL

6. Make a list of rules on pedestrian and bike safety (call your safety council, if you need help). Best of all, set a good example behind the wheel of the family car.
7. Police your backyard play area for sharp stones, glass, sticks and wires.
8. Don't let youngsters use archery sets, slingshots, darts, etc., unless an adult is present.
9. Avoid scalds, cuts and spills by making the kitchen out of bounds for children when meals are being prepared.

10. Have youngsters check in regularly after school hours, so you know where they are at all times. "I didn't know . . ." is a lame excuse when tragedy has struck.

Guarding Your Husband's Health

Husbands need "taking care of" because they are frailer than their wives, and are a better investment than stocks and bonds. This was the theme of the speech given by Dr. Theodore Van Dellen, medical editor of the CHICAGO TRIBUNE, at the 1962 convention of the AMA Auxiliary. Since 1960, more men than women have died annually, in this country, and half of the women over 65 in the U. S. are widows. Among the "early widow-makers," the physician listed heart disease, high blood pressure, alcoholism, cancer and accidents.

A healthy, vigorous man is able to rise above his ordinary aches and pains, but anger, frustrations, and gloom will sap his strength. Women should do their best to avoid adding to their husbands' difficulties by precipitating quarrels, and they have two safety valves: tears, and "talking it out" with someone else. Anger can trigger an angina attack and death, he said. Hostility constricts the blood vessels, churns up the stomach and raises the blood pressure.

A wife can be a real helpmate, by running a clean, relaxed home. If there are young children in the home, she should feed them early, so that when her husband comes home, they will not be cranky and need attention at the supper hour. If a wife has to "needle" her husband or nag him about his shortcomings, she should never do it at mealtime, or just before he leaves for work in the morning. "If you insist on having the last word, one of these days you will have it," he declared.

Dr. Van Dellen cautioned Auxiliary members to watch their husbands for a common ailment of the American male—work obsession. A man needs a yearly physical examination, including x-ray, electrocardiogram and blood test—including a blood-cholesterol determination—a good regular diet, and exercise. It is better for your husband to be underweight than overweight. If he has to be on a low-calorie diet, do not prepare high-calorie foods that he may not eat. Keep the diet low in eggs and fats; moderation in all things is a rule that should govern his smoking, drinking and eating.

Keeping physically fit is something else that will help him stay alive and healthy. The following types of exercise are ones that he can continue until the age of 80: walking, swimming, golfing and rowing. Encourage your husband to avoid overwork in his office by assigning paper work, such as the filing of insurance claims, to a competent aide. He should limit himself to the practice of medicine, and have his paramedical responsibilities taken care of by other people. Encourage your husband to cultivate a hobby such as painting or writing. Frequent short vacations are very important. Too much of the same daily routine makes one stale. Help your husband relax, for many people who are accustomed to hard work have never learned how to spare themselves. Our job as doctors' wives is to run calm relaxed homes!

—MRS. GEORGE J. MCMILLAN
President-elect

Ladies' Activities at Waterloo On October 11

The Woman's Auxiliary to the Black Hawk County Medical Society has arranged a full day's schedule of entertainment for the doctors' wives who accompany their husbands to Waterloo on Thursday, October 11, for the second annual Northeast Iowa Clinical Conference.

If your husband hasn't yet decided to attend, please tell him that he can find the list of speakers and their topics on page 682 of the October IMS JOURNAL.

The ladies' program is as follows:

8:00-9:30 a.m Registration and coffee
Speaker: Richard L. Jenkins, M.D., chief child psychiatrist, University Hospitals, Iowa City

1:00 p.m. Luncheon and style show, Hotel President

4:20 Roundtable discussion with Dr. Jenkins

6:00 Social hour and dinner dance, Elks Club
Concert by "The Medicats"
Music for dancing by the Wayne Marth Combo.

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

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JOURNAL of The IOWA MEDICAL SOCIETY

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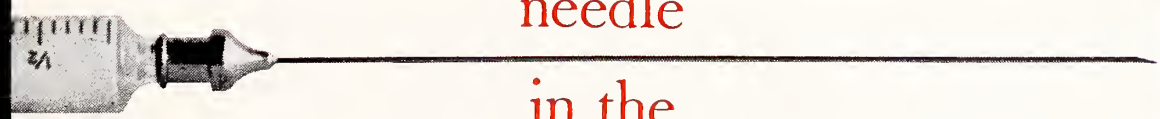

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NOVEMBER, 1962

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REFERENCES: (1) Roseman, E.: Neurology **11**:*912, 1961. (2) Bray, P. F.:* Pediatrics **23**:*151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.:* M. Clin. North America **42**:*317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) Ibid.:* Postgrad. Med. **20**:*584, 1956. (7) Merritt, H. H.:* Brit. M. J. **1**:*666, 1958. (8) Carter, C. H.:* Arch. Neurol. & Psychiat. **79**:*136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, p. 37. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1956, p. 187.*

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Impressions of Moscow, U.S.S.R., and A Glimpse at Russian Medicine and Art

Presidential Address to the Iowa Academy of Surgery September 14, 1962

ROBERT C. HICKEY, M.D.
Iowa City

By way of introduction I must thank you for the privilege of serving as president of the Iowa Academy of Surgery.

Initially I had elected to discuss early medical education in the Upper Mississippi Valley, specifically because Davenport, our host city, was the site of Iowa's first medical school 113 years ago. However, I have chosen a kindred but more timely subject—my recent experiences in Moscow, U.S.S.R.—and I shall include in my remarks some notations on Soviet medical education. An opportunity to observe Russian medical institutions was afforded me by the VIII International Cancer Congress, held in Moscow from July 21 through July 28, 1962. This is not a documentary "Inside Russia," but consists of observations that could well have been made by any of you.

We departed from Idlewild Airport, New York City, at 6:10 p.m., E.D.T., July 20, 1962, and after an elapsed-time of 12 and one-half hours, we were in Moscow. We traveled aboard an American Cancer Society chartered Boeing 707 jet aircraft, with a party of 147 people, and stopped only in London for one and one-half hours, while a Soviet navigator was boarded. The plane avoided transit over Poland and the lesser Iron Curtain countries, and passed over Copenhagen and along the North Sea.

In the Moscow approach, the aircraft flew low over a vast, relatively unpopulated, boggy terrain, and in the immediate approach to Moscow passed cultivated forests. In general, little evidence of active agricultural efforts were visible, although several scattered collective farms were noted. We were forbidden air-photography over Russian territory, and pictures from the ground about airports and bridges.

The airport, with its square, high-ceilinged masonry buildings, was drab and strictly utilitarian. One wondered about the obvious heating problems during the severe Moscow winters. After passing quickly through the customs scrutiny, we proceeded by bus to the hotel. Each national group had been assigned a hotel, and our entire party went to the Hotel Ukraina, Moscow's best hostelry. Our jet departed almost immediately, and we were to meet the aircraft in Paris some three weeks later. It was the first Pan-American World Airways craft to land on Soviet soil.

The bus trip from the airport consumed approximately 75 minutes. Initially, we coursed on smooth roads, past white birch forests, and then past expanses of potato fields. We were to see many peasants later, but we then specially noted the peasants along the highway, dressed in rough clothing, dark head-shawls and boots. Underfoot at that time there was considerable moisture, for it had rained, and the soil must have had a high clay content.

Dr. Hickey's report had been set in type when President Kennedy announced the U. S. blockade of Cuba on October 22. Despite the possibility more serious difficulties may develop between the United States and Russia at or before the time the November JOURNAL reaches its readers, we are going ahead with our plans to publish it on this and the ensuing pages, since we think it a completely objective and a valuable statement on some permanently important topics. If subsequent events make its publication seem inappropriate, we shall want our readers to pardon us.

The Editors.

Dr. Hickey is a professor of surgery and the associate dean for research at the S.U.I. College of Medicine. Mrs. Rose Van Vranken Hickey's sketches help to illustrate this report. Mrs. Hickey's comments on art are woven into the narrative.

Figure 1. Kremlin cathedrals from the fifth floor of the Palace of Congresses.

The 34-story Hotel Ukraina is one of the seven tall buildings in Moscow, the others being the Moscow State University, the Leningradskaye Hotel, the Ministry of Foreign Trade and Foreign Affairs of the U.S.S.R., and several apartment buildings. These are of white masonry, and each resembles the others in architectural design, having a broad rectangular base with smaller successive rectangles, and finally a tower and spire capped by the star. Our eighth-floor assignment was a spacious room, comfortably appointed with a bath and hot and cold running water.

The Hotel Ukraina's lobby was very ornate, having an architectural style similar to the Viennese but without the Viennese charm. The high-ceilinged lobby had floors of white marble with black stripes and squared geometrical designs. The walls were of white marble, and the staircase and the stairways were covered with red carpeting. Much brass was in evidence, at the railings and on the chandeliers. Square marble columns were interspersed in the lobby and hallways, and in the back of the lobby was a small lunch counter, a popular area for various students, dispensing tea and open-faced sandwiches. The dining room was spacious and ornate, with white Greek columns, many potted palms and plants, and massive crystal chandeliers. Huge arched windows looked out upon the street. The menus were in Russian, and each waiter served as his own cashier. Tipping was said to be forbidden in Moscow, but the waiters and waitresses managed to accept gratuities, though taxi-drivers refused them disdainfully. Oranges were about 30c each, but otherwise the food (except for coffee) was to be had at prices comparable with American ones. The service was swift at times, tardy at others.

The following morning we undertook to see Moscow. The capital and largest city of the Union of Soviet Socialistic Republics has a population of 7 million and is the major political, administrative, economic, and cultural center of the nation. Moscow is an inland port for five seas, and is the junction of highway, railway, and airway communications. Accompanied by Professor and Mrs. Norman Cromwell, of the University of Nebraska, we proceeded by public bus from the hotel along broad streets to the heart of the city. The fare was 4 kopecks. (For orientation, let me say that the rate of exchange is 1 ruble (100 kopecks) to $1.10.)

In common with all other tourists, we were attracted to Red Square and the Kremlin. Each may be considered a magnificent testimony to Russian history, architecture and art. The Red Square is a stone-paved rectangle of at least three acres, and is bounded by the Kremlin wall, St. Basil's Cathedral, GUM (the state department store), and the Historical Museum. The 1917 Revolution ignited in Red Square, and all great political gatherings are held there. The Lenin Mausoleum (shared formerly with Stalin) is adjacent the Kremlin wall.

The Kremlin is enclosed by red, crenelated walls, with spaced, fortress-like towers, and presents an imposing picture. Historically the Kremlin dates from 1156, when the initial walls of wood were positioned. Within is enclosed the seat of government for the U.S.S.R., and for centuries it has contained high governmental and church agencies. Unlike the Stalin regime, the Khrushchev government encourages its citizens to visit Moscow and the Kremlin, and to pay homage at Lenin's tomb. From throughout the U.S.S.R., bands of people take guided tours to the capital city.

At Red Square, the streets were crowded with Muscovites who, along with the lapel-labeled Cancer Congress members, were photographing their Square, each other, and the queue visiting Lenin's tomb. In addition, there were groups from the countryside, platoons of soldiers and an occasional sailor. Interestingly, the facial configurations of the soldiers attested anatomically to their diverse racial and ethnic origins from throughout the U.S.S.R.

One end of Red Square is bounded by the Vasily Blazhenny Cathedral (St. Basil's Cathedral), now a museum. Though the exterior of this architectural gem is in good repair, the interior is receiving long-overdue renovations. The wall frescoes inside had been injured by inclement exposure, and the evidences of Christian worship were in decay. The admission was 6 kopecks.

Despite severe language barriers and a complete lack of phonetic overlap, we were able to move about freely, using guide books, word-phrases, and occasional interpreters. The Russians were reserved but curious, and English—as elsewhere in Europe—is becoming a common communication tool for them too!

The apparel of the feminine members of the Cancer Congress attracted particular attention. With reference to the United States, it is to be recalled that only in 1958 was visitor exchange between the United States and the Soviet accentuated.[1]

Sunday is a crowded shopping day. We visited the GUM store, a block-long, triple-story structure along a margin of Red Square. The interior has arcades bordering upon enclosed, lengthy, longitudinal glass-roofed courts, with a vast number of small departments or stalls, for soap, special foods, toys, etc. Most goods, and especially luxury articles, are very expensive. For example, women's dress pumps are 52 rubles ($57.20) and a small bar of soap is 18 kopecks ($.20). On the other hand, toys and books are relatively cheap. Cigarettes are approximately the same price as in the United States, and one brand carries the picture of the world-orbiting dog. Prices are identical and fixed throughout Moscow. On the streets, refreshment stands were frequent, selling the ever-popular ice cream (introduced into Russia by Tsar Peter the Great), and soft drinks were ma-

chine dispensed into a common glass, which each user rinses with a water spray.

We lunched at the Moscow Hotel, which we identified upon chatting with Dr. and Mrs. Harry Morton, of Montreal, as the assigned residence for the Canadians. We were shortly to go to the Kremlin for the opening of the Congress, and in passing we saw an imposing statue of Karl Marx,

Figure 2. St. Basil's Cathedral from near the Moskvoretski Bridge.

by sculptor L. Kerbel, across the Square from the famous Bolshoi Theater. This was a short distance from Gorki Street, which honors the fiery revolutionary poet, and frequently throughout Moscow we were to encounter statues and tributes to political leaders. At 3:30 p.m. we passed up a ramp, under a tower, through the Kremlin walls, and went directly to the Palace of Congresses, a modern, beautiful five-story building, newly constructed of marble and plate glass. Escalators carried the visitors to various levels. The glass-enclosed foyer is extremely well appointed, is several stories high, and on the interior wall has a beautiful pattern of red and gold mosaics depicting the Soviet political banner, the hammer and sickle. From the windows of the fifth-floor banquet area one gets a startling, impressive view of the Cathedral Square inside the Kremlin and the other governmental buildings.

The auditorium in the Palace of Congresses is decorated nicely, designed efficiently, and desirable acoustically. Each chair had an attached earphone with a dial for the various languages, French, Russian, German and English, and a small desk for transcribing notes.

It is common knowledge that the International Congress held by the biochemists a year before had been handled poorly, but as time passed, the VIII International Cancer Congress proved to be well managed.

K. Rudnev, the vice-premier of the U.S.S.R., greeted the Congress delegates. He emphasized the public health aspect of the cancer problem, a viewpoint prominent in all medical matters in the Soviet, and further emphasized the hope that common scientific problems would lead to international cooperation and peace. The minister of public health of the U.S.S.R., Sergei Kurashov, spoke next, and he too emphasized the need for peace and stressed that the successes in the cancer work of the U.S.S.R. are associated with public health in a social system based upon free medical service. "Health and peace are indivisible," he declared. Other presentations were made by the

Figure 3. First floor, Moscow State M. V. Lomonosov University.

president of the Academy of Sciences,* who paid tribute to the United States for helping Russia solve its polio problem, and said that science should serve the humanitarian aspects of society. Another presentation, by the deputy mayor of Moscow, stressed the great wish of the Moscow people for peace, and asked the visiting scientists to visit the cultural centers of Moscow as well as the scientific centers. Another speaker was the deputy general of the World Health Organization, Professor Haddow, from London, and then the president of the Congress, Dr. Nikolai N. Blokhin, gave a scholarly and sound presentation without political overtures.

An intermission followed, and refreshments of open-faced caviar sandwiches and ice cream were served in the lobby. In some 20 minutes we returned to the Auditorium, where the Moscow Symphony Orchestra was guided through a splendid program by several distinguished conductors. Interspersed were artistic presentations stressing various aspects of Russian culture, as for example, a beautiful ballet by an artist from the Bolshoi Ballet portraying Pavolova's *Dying Swan* dance. The pianist award-winner of the recent Tchaikovsky Festival made an appearance, along with conservatoire artists and costumed group presentations. We saw an impressively executed Russian sabre dance. The buses took the awed spectators back to their hotels at about 11:00 p.m.

The State University of Moscow—in Lenin Hills, some 20 minutes from downtown Moscow— housed the scientific meeting. The participants were taken by buses to the University, and most of the sessions were held in the principal building there, a towering structure some 787 feet in height, described previously. As in the other buildings, the high-ceilinged ornate architectural pattern existed. As one proceeded along the first floor of the building, he encountered numerous small stands, selling stamps, open-faced sandwiches (10 kopecks), soft drinks (14 kopecks), books and supplies. Various classrooms were on the floors above, and the conference rooms for the Congress were on the first floor. On the second floor was the Central Auditorium for the major Congress lectures. The Central Auditorium is ornate, but the acoustics are good. Throughout the week, sectional meetings were held within the University, so that a wide choice of topics was offered, with simultaneous translation in the official languages of English, French, and Russian.

It would be impossible to review the numerous individual papers.[2] In fact, the limitation of detailed conferences and symposia on selected topics might be a criticism. Certainly the exhibits needed strengthening, but perhaps the topic-tenor of the meeting might be indicated by listing the titles of the Congress lectures:

1. Prof. O. Muhlbock (Netherlands)—Cooperation Between Laboratory and Clinic in Cancer Research.
2. Prof. L. A. Zilber (U.S.S.R.)—Role of Viruses in the Origin of Cancer.
3. Prof. A. Haddow (Great Britain)—Advances in Knowledge of the Cancerogenic Process, 1958-1962.
4. Prof. M. Tubiana (France)—New Methods of Radiotherapy.

*5. Prof. V. A. Engelhardt (U.S.S.R.)—Biochemistry of Cancer.

6. Dr. J. R. Heller (U.S.A.)—Cancer Control.

MEDICAL EDUCATION

Now to examine briefly the Soviet higher educational technics. Higher education is looked upon as an extremely important matter in the U.S.S.R. In the MOSCOW NEWS (an English-language weekly), on Saturday, July 28, V. Elyuten, minister of higher and secondary specialized education in the U.S.S.R., wrote as follows: "In the past ten years the number of specialists with higher education who have graduated in the U.S.S.R. has increased almost 100 per cent; in particular, the number of engineering graduates has increased more than 200 per cent. Today we have 739 higher educational establishments with 2,600,000 students. This year alone more than 300,000 highly qualified specialists have graduated. Of these 117,000, or more than one third of all the higher school graduates, have trained in their spare time."

The Moscow State University occupies a prominent part in the totally state-supported educational system, and we were told that there were some 26,000 students, of whom 11,000 were students

* Because of illness, read in his behalf.

Figure 4. A case presentation by Dr. Peterson, Institute of Clinical and Experimental Oncology.

* The Academy of Sciences was created in 1724 by Peter the Great, and was modeled after the Academy of Sciences in Paris. The Academy of Medical Sciences of the U.S.S.R. (Akademiia meditsinskikh nauk U.S.S.R.) was established in 1944, and Dr. N. N. Blokhin is its president.

in residence. During our visit, we devoted less attention to the technics and curricula of undergraduate medical education than to the various research institutes conducting activities at our graduate level. In general, the following describes the medical educational system:[3, 4] In Russia, at the time of the 1917 revolution, there had been 15 medical schools, with 8,600 students and an annual output of 1,300 doctors. By 1961, there were 80 higher medical education institutions (Medvuzes) with over 163,000 students in training. Within the period 1925-1930, the schools of medicine of the universities were organized into independent institutions called medical institutes, only five schools of medicine being specifically associated with the universities. It was felt that this type of organization and administration of independent educational institutions justified itself by providing an increased opportunity for enrollment, and reorganization of teaching methods to meet new demands. All of the republics have institutions, and the teaching in each school is in the local language. The higher medical institutes of the U.S.S.R. are of two types, specializing either in one field or in several fields. The following fields or schools exist: General Medicine, Pediatrics, Hygiene (Public Health), Stomatology (Dentistry), and Pharmacy. Most medical institutes have just one school. In 1956, there were 16,411 faculty members, i.e., one for each ten students. A single curriculum is developed for all institutes by the Ministry of Public Health and the Ministry of Higher Education. The period of training for General Medicine, Pediatrics, and Hygiene is six years, and the other two schools have five-year courses. Education is free, since funds for the support of the institutions, new construction, dormitories, and scholarships are all provided by the state.

For admittance, ten years of secondary school education is required, and entry is by examination. The basic primary or "lower" school lasts seven years, and the "middle" school lasts three years. Special preference for medvuzes admission is given to medical assistants (feldshers), midwives and nurses, who are required to take three entrance examinations, whereas four are required of graduates from the secondary schools. At present men comprise about 50 per cent or more of the applicants, and this figure is higher than it has been in the past, for 70 per cent of the practicing physicians are women. In general, the curriculum follows the notion that the students should have a theoretical foundation in medicine and biology, and later should pass to the clinical subjects. From the third year, medical subjects are taught, and third-year students perform the duties of nurses. In the fourth year, the students are exposed to industrial medical practice in regional hospitals—something akin to a preceptorship—and the fifth and sixth years are spent in ward work. The students take five state examinations, covering four medical subjects and Marxist philosophy, for the degree of "Vrach" (physician).

When they have completed their training, a commission gives the graduates a choice of several areas in the country where a demand for service

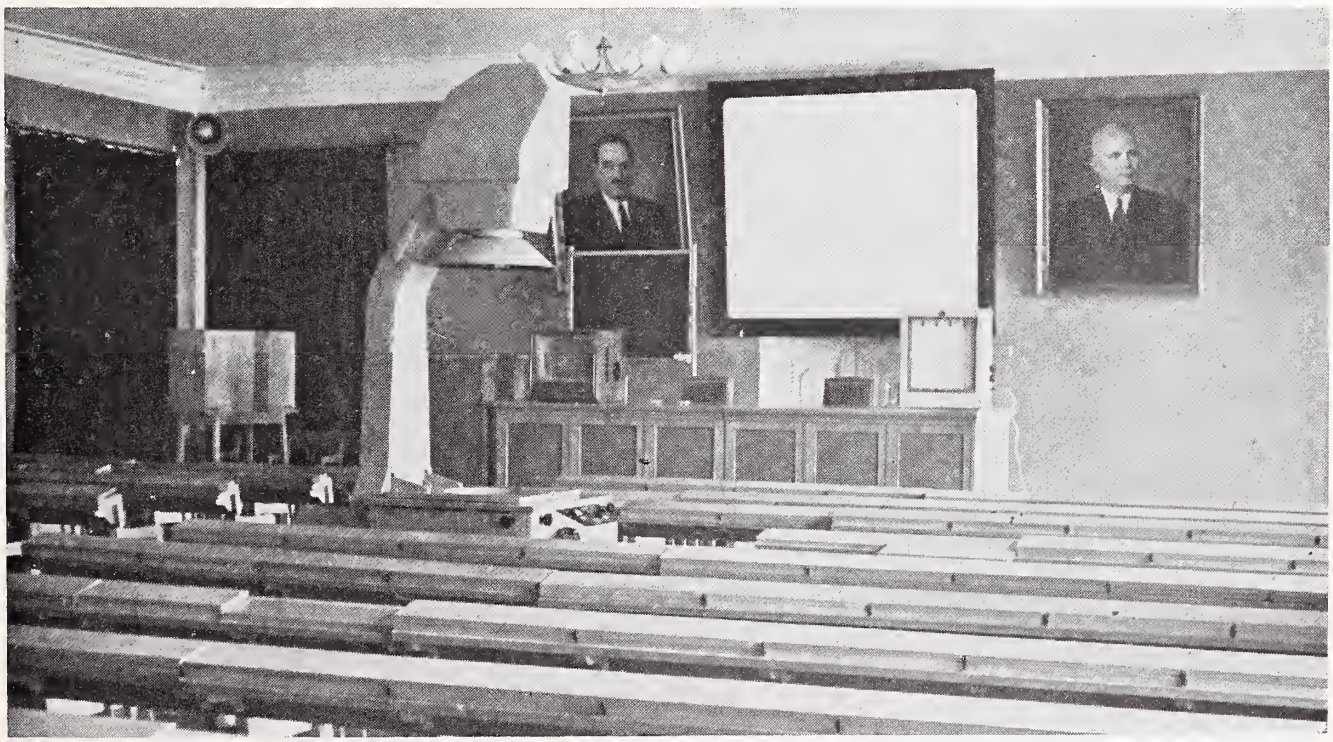

Figure 5. Classroom, Institute of Experimental and Clinical Oncology. Note the photographs of political figures, also the versatile desks and the excellent visual-aid equipment.

exists. At his assigned place, the young physician works for three years, and special and refresher courses are available to him thereafter. The recruitment of professors and instructors is from the postgraduate programs, and the schools of postgraduate studies accept young doctors as "aspirants," usually on the basis of a demonstrated interest in scientific research, mainly after three years of practical experience. Upon graduation from the three-year postgraduate course, the student presents and defends a thesis for the degree of Candidate of Medical Sciences. The highest degree, Doctor of Medical Science, is conferred after further study and independent research. Clinical specialization on a hospital service as "ordinator," or resident, is also possible.

In addition to the higher medical school, there is another type of institution within the Soviet Union called the Medium Medical School, which trains nurses, midwives, and feldshers (medical assistants). Feldshers work under the supervision of doctors in towns or in rural areas, but are not accorded the same category of patient responsibility as are the graduates of the higher medical schools.

The opportunity was presented us to visit three research institutes. The Institute of Experimental and Clinical Oncology of the U.S.S.R. Academy of Medical Sciences celebrated its tenth anniversary at the end of last year. This laboratory has a clinic of some 260 beds, and has basic science laboratories of biochemistry, virology, tissue culture, and immunology, as well as programs in carcinogenesis and other subjects. Professor N. Blokhin, president of the U.S.S.R. Academy of Medical Sciences, is the director, and we were shown about the Institute by Professor B. Peterson, Doctor of Science in Medicine, who heads a 60-patient section on thoracic surgery (Figure 4). In common with other Russian buildings, the Institute appeared considerably older than its stated age of ten years, and the operating rooms were small. A considerable activity was progressing.

Two other institutions merit comment. The Scientific Research Institute for Experimental Surgical Apparatus and Instruments, we visited in company with Dr. Harry Nelson, of Detroit, and Dr. Murray Copeland, of Houston. The purpose of this Institute is to design medical instruments, and to develop new methods of instrumentation and surgical treatment. Particular interest centered upon automatic surgical suturing devices, and demon-

Figure 6. Church housing the betatron of the Roentgenologic-Radiologic Scientific Research Institute.

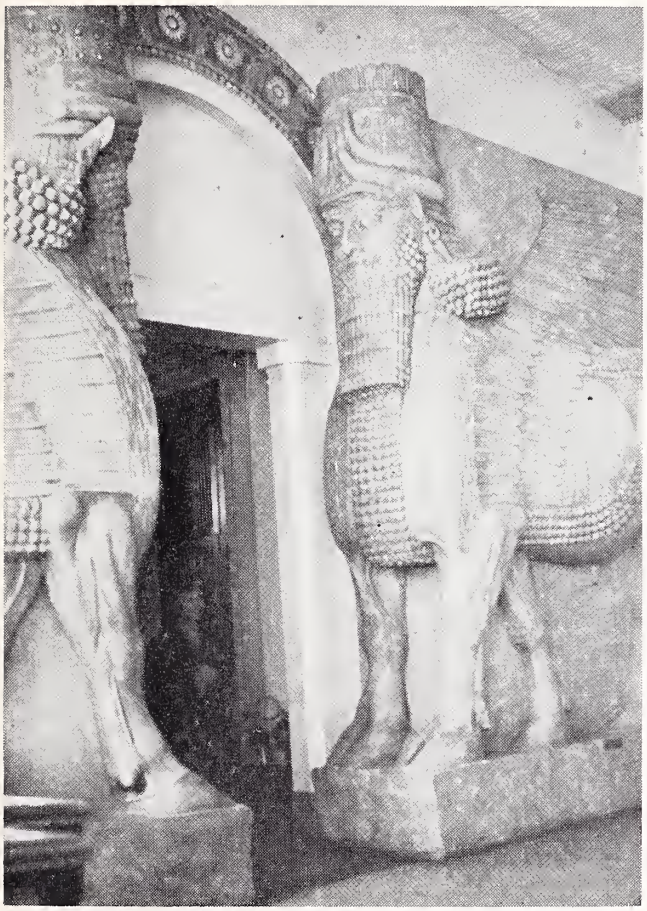

Figure 7. Assyrian figures, Pushkin Gallery.

strations were given of devices for gastrointestinal suturing and of another used following mass ligation of the lung hilum in extirpative pulmonary surgery. This Institute was designing apparatus for kidney perfusion, extracorporeal pumping, and such. After it has been designed on the basis of submitted ideas, the apparatus will be tried and then placed into a semblance of mass production.

We also made a visit to the Roentgenologic-Radiologic Scientific Research Institute, which is the leading radiologic research facility of the U.S.S.R. This Institution has a hand in the training of radiologists, and the staff familiarizes itself with, and tests, technics and equipment from origins widely separated within the U.S.S.R. and from abroad. There were approximately 100 patient beds within the institution, and 200 beds are available at the other municipal hospitals. There was a staff of some 450 people, of whom at least 100 were specifically research persons. Separate diagnostic and therapy departments were maintained. It is noteworthy that technicians carry out dosimetry and health-protection details, and that they routinely do research as well. The radiographs reviewed seemed technically poor, from a diagnostic viewpoint. Upon one patient we viewed bronchoscopy, with biopsy and cytology specimen collection and bronchography simultaneously under operating-room fluoroscope control.

There were several investigational sections in the Institute, and a wide variety of creditable equipment. One section was directing its attention

Figure 8. From left to right, Professor Lagounowa Irina, M.D., director, Roentgenologic-Radiologic Scientific Research Institute; Signora Dante Risso, Brazil; a research associate (unidentified) at the Institute.

to lymphangiography technics, another to isotope technics, others to clinical investigation with high-energy equipment, etc. The high-energy equipment (cobalt) appeared quite versatile, and the observational areas with closed-circuit television were functional. We visited the radiologic annex, 100 yards from the main institute, and found this to be a century-old renovated church (Figure 6), which we were told had thick protective walls particularly suitable for a betatron installation. Few churches are used for worship nowadays in Russia.

In each research institute, the visitors were received very cordially, and at the conclusion of the tour, tea, cookies, and in the instance of the Radiological Institute, light wine, were offered them. Politics was never introduced, but in general the visitors had a minimal amount of to-and-fro informal exchange with the Moscow scientists. In each Institute, broad and aggressive expansion programs had passed the blue-print stage. The Russian pattern of categorical research development holds promise of success.

GENERAL IMPRESSIONS

Considerable freedom was permitted us, so that we were able to travel and explore the city unescorted, on the subway system (Metro), on the bus routes, and by taxicab. All forms of transportation were inexpensive, and in general crowded. The private vehicles were few, and even bicycles were relatively infrequent. We noted that most children from about 8 to 16 years of age were out of the city at Pioneer camps, and that man's best friend, the canine, was conspicuously absent. Repeatedly it was pointed out that housing is at a premium. In the immediate past and now, an aggressive building program has been underway. The apartment rentals are on a graded basis—from 5-7 per cent of income—and individual ownership of urban one-family homes is discouraged. The statistics with respect to housing are very difficult to analyze, but the 10-year and 7-year plans for Moscow are well documented.

To comment on the fine arts, Russia's greatest collection of art is in the Hermitage, in Leningrad, but Moscow's very fine Pushkin Gallery (Figure 7) and the Trefyakov Art Gallery merit plaudits. In the reconstruction of Moscow, parks and parkways are not being overlooked. In this era the major churches, such as the ones inside the Kremlin and St. Basil's Cathedral, are used as museums.

All tourist travel in the U.S.S.R. is supervised by the state-controlled Intourist. The Intourist makes hotel reservations, and ticket reservations, and furnishes guides and such. This type of strict regulation leads to cumbersome management, with some measure of frustation to those being "helped." Although as stated, few political connotations were presented at the scientific meeting, other than at the opening ceremony, a considerable nationalistic indoctrination was evident in the Intourist people. The English-language newspapers were markedly one-party, and the United States was condemned as an aggressor. But in communication we too are at fault, as for example, in providing poor cinema selections for Russian review. Movies such as "Blackboard Jungle" (specifically cited) are unfair. Within the Soviet school system, tiny children sang lyrics such as (with the words paraphrased), "Does Russia want war—no!" When these were sung to an American group on a post-Congress tour, and when the visitors were invited to reply, they chose to sing "God Bless America!"

CONCLUSION

This reviewer cannot serve as a barometer of social or political matters, nor for that matter, can he appraise in adequate depth the medical and research activities that the visitors were shown. The preceding are hastily formed impressions. Russia and the U.S.S.R. are an awakening political and industrial giant. Within the medical education system, the professorial specialists are, in their environment, on a par in accomplishments with those in the United States, but probably the level of general medical care within the community is at a lower level. The life expectancy in the U.S.S.R. is said to be 68 years—nearly comparable to ours —and this achievement has been realistically credited to aggressive public health measures.

In political affairs, this writer is a novice, but he cannot escape the distinct impression that the United States is thought of as an aggressor in a background which suggests that the two economies cannot endure side-by-side. There have been liberalizations since Stalin's death in 1953. Thus, it may well be that through cultural and academic exchange the international tensions can be lessened, and some form of harmony brought about. People are people everywhere, and after all, the unique and militant Communist Party is said to comprise but 3-5 per cent of the Russian population!

REFERENCES

1. Committee on Foreign Relations, United States Senate: U. S. Exchange Programs with the Soviet Union: Czechoslovakia, Rumania, and Hungary. August 20, 1959.
2. Vermel, Ye. M. and Wolfson, K. G., editors: VIII International Cancer Congress, Abstract of Papers. Moscow, Medgiz Publishing House, 1962.
3. Ostroverkhov, G. E.: Higher medical education in the U.S.S.R. J. M. Educ., **36**:986-995, (Sept.) 1961.
4. Shimkin, M. B. and MacLeod, C. M.: Medical education in the U.S.S.R. J. M. Educ., **34**:795-801, (Aug.) 1959.

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Scientific Articles

The Management of Preeclampsia And Its Prevention

CLYDE L. RANDALL, M.D.
Buffalo, New York

THE TOXEMIAS OF PREGNANCY are a matter of continuing importance. They are also a matter of particular interest to obstetricians and to all persons interested in public health because the frequency of the severe toxemias of pregnancy is a pretty good index of the adequacy and the effectiveness of prenatal care in the community. If you are seeing toxemia, and particularly if eclampsia is developing in your community, there is an inadequacy of prenatal care. It is pretty hard to say what an acceptable frequency of toxemia should be, however, in your community or any community, because it depends upon the circumstances which account for prenatal care.

THIS IS A PROBLEM FOR EVERYONE WHO PRACTICES OBSTETRICS

We have heard so often of the frequency of toxemia in certain areas of the country, that we are inclined to think of it as something that develops only in the backwoods, and not a problem we are likely to see in our own communities. As a result of this very type of complacency, however, we are likely to see toxemia develop in our own practices. What is of prime interest to us today, is the fact that there are reasons to believe toxemia—even to a point of convulsing eclampsia—may appear in your practice as well as in mine. The patient could be the wife of a farmer or a factory worker, or the wife of the principal of your school, or a teenage girl in your high school, for this complication is no respector of persons or of social or economic status. At the same time it is also true that on some obstetrical services in the country, 10 per cent of the patients when admitted to the hospital have convulsing toxemia. In other parts of the country on equally large obstetrical services, real eclampsia is almost unknown.

Our experience in Buffalo is pretty good evidence of where we should look and what we should watch for if we are to recognize the sources of toxemia where this complication of pregnancy is not endemic. Consider for a moment that in the three Buffalo hospitals actively affiliated with the School of Medicine, among approximately 4,500 private patients who deliver each year in those hospitals, for several years there has been about one case of eclamptic toxemia per 3,000 admissions. However in one of those hospitals, the Buffalo General, the obstetrical ward service consists of some 900 clinic admissions per year, plus nearly 400 unwed mothers delivered in the Salvation Army's Booth Memorial Hospital, and among those 1,300 ward cases, with the same residents and staff attending, eclampsia is observed two or three times in each 1,000 admissions—still not much of a problem, but it suggests a difference in incidence from one group of patients to another. When the same residents rotate to the E. J. Meyer Memorial (County of Erie) Hospital, after three years' experience on predominantly private-case obstetrical services, but again under the supervision of the same staff, they find themselves delivering approximately 100 cases a month, but caring for two or three convulsing toxemias in every hundred patients admitted. One might comment, I suppose, that the frequency of toxemia seems to be increasing as the residents gain added experience.

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The County Hospital offers adequate prenatal care. Actually, for the approximately 1,200 service cases delivered there, more than 5,000 prenatal visits are made to the clinics each year. The patients who receive this prenatal care, however, are not the group in which the severe toxemias develop. Approximately 10 per cent of the patients admitted to the County Hospital service come in without any preceding prenatal care. When first seen, many are either in active labor or having convulsions, and their first contact with a staff physician is frequently as an emergency admission.

For the purpose of recording whether an obstetrical case has had prenatal care or not, we would suggest the following definition: If the woman has not made at least one prenatal visit in each of the last three months of pregnancy—she has not had prenatal care. It does not seem fair, if a woman came in once during her seventh month and did not return to clinic, or has come in a week before delivery, to consider or record that she has had "prenatal care."

TABLE 1

TOXEMIAS OF PREGNANCY

Classification by the American Committee on Maternal Welfare

I—Acute toxemia of pregnancy (onset after the 24th week)
II—Chronic hypertensive (vascular) disease with pregnancy complicating
III—Unclassified toxemia (insufficient data to classify)
IV—Recurrent toxemia (normal between pregnancies)

It is important to remember that whereas the overall incidence of convulsing eclampsia at our County Hospital is two or three per hundred, among the patients admitted in late pregnancy without previous prenatal care, the incidence of eclampsia averages nearly 20 per cent. There is a very real relationship between prenatal care and the incidence of toxemia. There are other differences, of course, but nevertheless, we believe that to provide prenatal care is the one way we can prevent the development of toxemia to a point of convulsion.

It is certainly important to remember that it is not only the overworked, ill-fed multipara from the tenement who develops eclampsia. While her lot is a sad one, she isn't the one who contributes so heavily to our incidence of eclampsia and to our maternal deaths. Not infrequently, it is the unhappy and over-fed primagravida who has no one to think of and care for but herself. She often fails to keep appointments with her doctor and fails to follow his advice. The out-of-wedlock primagravida may hide out in her own home until she obviously is seriously ill. These girls not infrequently account for our convulsing toxemias. It is important to remember that simply being healthy and being young are by no means adequate safeguards against the development of toxemia.

To illustrate that this is *our* problem as well as the patient's, let us also remember that toxemia may be developing in a patient who thinks she's perfectly well. Fortunately, however, the signs of toxemia are very definite—and usually detectable before the patient begins to complain. As a result, we cannot sit in our offices and wait for prenatal patients to complain of pains around the middle of the abdomen or of a severe headache or of an inability to see well, before realizing that the patient has developed signs of toxemia. Hypertension, albuminuria and edema are detectable—before the girl begins to feel sick.

THE CLASSES OF TOXEMIA

We might well consider, for the moment, what we are going to look for, and what we should do if we find signs of toxemia. First, however, we must agree on terminology—upon the definitions and the classes of toxemias. We prefer to think and talk in terms of the classification that has been proposed by the American Committee on Maternal Welfare. Its definitions are practical, simple, and workable. Group One includes the *acute toxemias* of pregnancy that we are talking about today, which usually appear after the twenty-fourth week of gestation. There is another group, the *chronic hypertensive vascular disease* cases. The condition of these patients becomes aggravated during pregnancy, to a point of producing a picture that is somewhat difficult to distinguish from that of the acute toxemias. There are also *unclassified toxemias,* but you should never have to assign a patient to this group if you are taking care of her. This miscellaneous category is included among the classes because if one is unfortunate enough to have to review the toxemias that have developed in some hospital over a period of years, and tries to grade them all as belonging either to Group One or Group Two, there will be some cases on which insufficient information is available and for which a third grouping must be set up. Thus, "unclassified toxemia" may simply mean that there isn't a history or a

TABLE 2

INCIDENCE OF THE VARIOUS TYPES OF TOXEMIA OF PREGNANCY*

	Per Cent
Preeclampsia	58.6
Eclampsia	1.4
Chronic hypertensive vascular disease	28.4
Preeclampsia superimposed on chronic vascular disease	8.8
Unclassified	2.8

* Data from: Obstetrical Statistical Cooperative, Schuyler G. Kohl, M.D., State University of New York, Downstate Medical Center, Brooklyn 3, New York, 1959.

record of what the patient's blood pressure was early in pregnancy, or before pregnancy. There are also a few cases of *recurring toxemia*. In some instances, because the patient seems altogether normal between pregnancies, her story does not fit with the criteria for chronic hypertensive disease; yet the toxemia has recurred, despite the fact that acute toxemia infrequently does so.

The *acute toxemias* that we are concerned with today are subdivided into those with *preeclampsia* and those with *eclampsia*. Preeclampsia is simply subdivided again into *mild* and *severe* cases. Eclampsia continues to be defined as the situation in which coma or convulsions develop, associated with hypertension, albuminuria or edema. Hypertension is a necessity, and there may be either albuminuria or edema, but usually all three are evident.

Preeclampsia is by far the major problem. In a sizable series reported by Schuyler Kohl, 58.6 per cent were in this category. True *eclampsia* occurred in only 1.4 per cent of the patients with toxemia. Kohl's figures do not suggest a high incidence of eclampsia, and the incidence probably is a proportion not unusual in the majority of the larger hospitals. The cases of *chronic hypertensive vascular disease* made up almost 30 per cent of Kohl's series. We should expect some of the patients with chronic hypertensive vascular disease to have an acute toxemia superimposed. This occurred in 8.8 per cent of the cases in Kohl's series. The unclassified group totaled only 2.8 per cent of the cases reported.

The type of toxemia is important because it has a great deal to do with what happens to the fetus. Preeclampsia is not too severe a problem as far as fetal survival is concerned. We must keep in mind, however, that if we lose two babies per hundred, our perinatal mortality is "fair," if we lose three per hundred, it is "poor," and if we lose four babies per hundred births, it is "terrible." At least such figures indicate what our overall fetal loss ought to be on the average well conducted obstetrical service at this time. If an overall loss is "terrible" at four per hundred, and preeclampsia very definitely increases fetal loss, it is evident that much of our overall fetal loss is likely to be accounted for by such complications as the toxemias.

TABLE 3

PERINATAL MORTALITY ASSOCIATED WITH THE VARIOUS TYPES OF TOXEMIA OF PREGNANCY*

	Per Cent
Preeclampsia	5.5
Eclampsia	11.0
Chronic hypertensive vascular disease	6.3
Preeclampsia superimposed on chronic vascular disease	19.0
Unclassified	5.7
Overall loss in toxemia	7.0

* Data from: Obstetrical Statistical Cooperative, Schuyler G. Kohl, M.D., State University of New York, Downstate Medical Center, Brooklyn 3, New York, 1959.

Even with good treatment, eclampsia poses a high risk to the baby, approximating 11 per cent fetal loss. The chronic hypertensive vascular disease group includes women with permanent changes in their vascular systems, but compensatory changes in hearts and kidneys, particularly for some time. They tolerate pregnancy reasonably well, with a loss of about six per cent of their babies. If preeclamptic toxemia is superimposed upon this chronic hypertensive disease, however, fetal loss is increased to nearly 20 per cent. Obviously, most of the patients in the "unclassified" group have a degree of preeclampsia. As far as the effect upon the child is concerned, when there is any toxemia, the overall fetal loss averages about seven babies per hundred women delivered.

DIAGNOSIS

Preeclampsia is characterized by the development of hypertension, edema and albuminuria. We usually consider that a patient is showing evidence of *hypertension* if her blood pressure is above 140 mm. Hg systolic, or above 90, diastolic. All of us recognize that when we put the prenatal patient on the examining table and take her blood pressure, we frequently find it higher than "normal," but that when we have kept the cuff on her arm and have talked about the weather or have gone to answer the telephone and come back in five minutes, her pressure is likely to have gone down. Apparently much increased blood pressure disappears if we make certain that the patient is not in an emotional twit at the time we take the blood pressure, and we must have a fairly representative figure for "usual resting blood pressure."

We all realize that we cannot set a hard and fast rule as to the blood pressure readings which indicate toxemia, but certainly an unexplained and abrupt rise is more significant than an actual level. All of you have taken care of patients who start out a pregnancy with pressures of 136/82 and who develop pressures above 140/90 mm. Hg and yet *do not* develop toxemia. Nevertheless, a girl who is hypotensive in early pregnancy, with a pressure under 110/70, but then suddenly begins to show 138/88 or something of that sort, may be just as toxic as the girl who has a pressure of 160/98 mm. Hg. Thus, it is all important to have a record of pressure at successive visits in order to detect a significant change.

Changes in the eyeground findings, as determined with the ophthalmoscope, may be very important. The really toxemic patient will show areas of constriction. The classic description of the findings compares their appearance to that of linked sausages strung across the retina. If the toxemia becomes more advanced, these areas of spasm persist and become longer, and there are whole areas where the vessel almost seems to disappear.

The differential diagnosis is usually not a very great problem. Acute nephritis is a possibility, but acute nephritis is usually preceded by a definite history of infection that we can readily learn about. There should also be hematuria and more nitrogenous retention. We are not likely to confuse acute nephritis with the abrupt onset of toxemia.

Nephrosis is characterized by massive albuminuria and edema, and low blood proteins—not nitrogen retention but low blood proteins—increased cholesterol, but no increased blood pressure. This is why an increased blood pressure is of particular significance in the diagnosis of toxemia. The best way to differentiate essential hypertension from toxemia—in some cases the only way of distinguishing it—is by having records of the patient's blood pressure before she became pregnant, or at least some indication of her blood pressure during the first trimester of the current pregnancy.

Hypertensive disease is suggested when the patient's blood pressure is extremely high, and when the retinal findings show exudates and hemorrhages as well as spastic narrowing of the vessels. When there is cardiac enlargement and if there is no evidence of valvular disease or lesion of the heart to account for the hypertrophy, there is usually hypertension; and the patient usually has been hypertensive for a while. Thus, cardiac enlargement is likely to mean hypertensive vascular disease. It is much more frequent in multipara, particularly among patients who give histories of having been "toxic" in previous pregnancies and of having worried physicians on account of their blood pressures. If the blood pressure is up, and if there is no edema and no albuminuria, the difficulty is sure to be hypertensive disease.

We should always try to differentiate hypertensive vascular disease from true toxemia of pregnancy. This is of importance, because with the patient who has hypertensive vascular disease, showing hypertension and some edema, we can temporize a little more. We can expect this patient to tolerate her toxemia better than can the patient who has been perfectly normal before the onset of hypertension, edema and albuminuria. We should remember to be more concerned about the patient with the acute picture than we may be with the patient whose pressure we know has been elevated, even before pregnancy.

TREATMENT

When we recognize that our patient has developed preeclampsia, what should be the objectives of our treatment? First of all, we want to prevent convulsions. We do not want this disease to progress to the point of convulsing toxemia, or true eclampsia. It is also important to deliver the child in a viable condition, and therefore we usually cannot deliver the child as soon as the patient shows evidences of toxemia, since the infant may then be too immature to survive. It is also important, if possible, to conduct the delivery in such a manner that we preserve the mother's ability to have more children. This means delivering her without performing a cesarean section, if we can, for we must always remember that a cesarean section jeopardizes the mother's ability to have more children. The majority of sectioned patients go through subsequent pregnancies without complication, but nevertheless, the possibilities of accidents in pregnancy are increased in women who have previously been sectioned. There are other equally important reasons for avoiding cesarean section, and they will be discussed later.

On the other side of the ledger, however, we do not want the patient to progress very long in a toxic pregnancy, tolerating the toxemia and its effect upon her blood vessels, and therefore upon her kidneys, liver, heart muscles, etc., to the point of developing residual vascular damage. Certainly, there is reason to feel that we cannot procrastinate indefinitely simply because the patient has not yet had a convulsion.

The four objectives of our treatment should be:

The prevention of convulsions.

Delivery of a viable child.

Delivery with minimal maternal injury.

Prevention of residual vascular damage (hypertension).

We can often realize these objectives by simply inducing labor and getting the patient to deliver as soon as the toxemia is under control and her baby seems big enough to have a good chance to survive.

There are reasons why the induction of labor is much more popular today as the means of terminating a toxic pregnancy than delivering these patients by section. We now recognize that the premature baby delivered by section is much more likely to have respiratory difficulty than is the baby that has been born through the birth canal. So if we suspect that the child is going to be premature, we should avoid a section if it is at all possible to do so. Fortunately, we can usually carry these patients long enough to get the baby up to a viable size, without convulsions developing. This can be done with the patient ambulatory, and ambulatory management can be continued as long as the signs of toxemia are not progressive. Ambulatory treatment consists largely of a sodium-restricted diet, and remember, in the words of Dr. Eastman, that the way to find out if the patient is staying on a salt-poor diet is to ask her if she likes it. If she says, "No, it isn't bad," you can be sure that she isn't staying on it. Toxic women must cut out salt and soda water. Thus, we usually tell them that anything that is salty and tastes good, and any drink that fizzes—are out. These patients must also have bed rest. If the patient says she cannot follow such instructions—and she frequently does—we usually should tell her that she must enter the hospital so as to be sure of getting the rest she should have. The threat of hospitalization is often a very persuasive line.

Diuretics should be used with caution. Ammonium chloride, if it is kept up for any length

of time, will certainly produce acidosis, which is harmful to the baby. The cation-exchange resins —Diamox, Diuril, etc.—are very effective in getting rid of fluid. They combine with sodium and take the sodium out, but they also take calcium out, and the patient eventually winds up with acidosis if these are continued. For this reason, such diuretics should be used intermittently and with caution.

If hospitalization seems advisable, either because the patient does not improve on ambulatory management or because the toxemia is obviously becoming worse, one orders practically the same things—bed rest, a salt-poor diet and intermittent diuretics—but in addition one can prescribe a little more sedation. When patients appear on the verge of convulsion, however, magnesium sulfate intramuscularly should be administered, rather than larger doses of barbiturates.

Intravenous fluid is often helpful because dextrose can be given with it. The termination of pregnancy is, of course, by far the most effective treatment, and it can be done just as soon as we think the child will survive.

However, when we think it important to let the child stay in the uterus another month, because it is too small, we should take into account that in severe toxemia the placental function may be so deranged and so inadequate that the child may not be well nourished—may actually be starving to death in the uterus and will not be gaining weight while we await its further development. Thus there are reasons to think that we cannot carry these patients indefinitely, unless the toxemia is well controlled by the medical measures employed. While these are effective measures, they do not rid the patient of the toxemia, and if we try to carry her too long, we may wind up with a baby that is so nearly starved that it will not survive, or one that has not grown as much as we have expected.

With any management, practically no preeclampsia should progress to eclampsia. How much residual vascular damage the patient may experience is more difficult to predict. We are not certain how much permanent damage is done to the toxic patient who comes through without convulsion. The classical definition implies that the patient never has any more trouble. The life insurance companies are not particularly inclined to inquire as to whether women applicants for policies have had toxemia of pregnancy, and one would suspect that if toxemia of pregnancy produced any appreciable amount of residual damage in the vascular system, the life insurance companies would have caught onto it some time ago. This is at least one reason to think that if you carry your patient through one toxic pregnancy, she will probably not have permanent damage, unless she already had hypertensive vascular disease. There is definite risk to "carrying the patient along" with toxemia, and the risk is greater the longer that it takes to get the patient's condition well controlled. Residual damage is more likely to occur in older patients than in young ones, and more likely in the obese than in those who are not overweight.

SUMMARY

In conclusion, toxemia is something that may occur in your practice and in mine. It should not be considered a disease that complicates pregnancy only in the poorly-nourished, miserably unhappy indigent patient who lacks proper diet. Toxemia is also likely in the only child who has always tended to be rather defiant of the things that her parents wanted her to do, and who is defiant of what you, as her doctor, want her to do. She will skip her appointments, or she will eat salt despite your prohibition. She has been overeating for years, and she is overweight. She just likes to be ornery and contrary. Watch this girl for toxemia of pregnancy!

It is also likely, I think, to occur in the cooperative, very attractive and intelligent young mother who is a perfectionist. Her house is spotless. She is the hard-working, ambitious girl who kept her job until she was in the seventh month of pregnancy. She does everything with a memo pad in her hand. She has questions written down to ask you. She does everything very well—except to relax. Watch this girl for toxemia of pregnancy. She will show hypertension, and you will think that 140/90 mm. Hg is simply a reflection of the tense person this girl has become. All she needs to do is to add albuminuria and edema!

For these reasons we keep talking about the toxemias of pregnancy. This is a very severe complication of pregnancy when full-blown, yet it is an absolutely preventable disease; and its prevention remains our problem.

Failure to prevent convulsions is usually due to failure to appreciate the early signs of developing toxemia.

The objectives of our treatment may usually be realized through induction of labor as soon as the child seems sufficiently mature to have a good chance of survival.

The dangers of residual vascular damage are increased by "carrying the toxemia along," particularly in older patients and in the more obese.

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Aviation Medicine And Patient Air Travel

J. H. BRITTON, M.D.
Washington, D. C.

MAN, OVER THE MILLENIA of his development, has remained a land animal, well adapted to his life and survival in essentially a two-dimensional environment. In this environment, under usual circumstances, he is able to maintain normal orientation. As a biped, he easily maintains his balance both standing and in motion. The ability to orient himself is dependent on an elaborately developed nervous system, with special senses such as ocular, vestibular, proprioceptive, etc. He has essentially developed to live at sea level but, in time, can adapt to altitudes of 15 to 18,000 feet.

Man has always looked upward, has been envious of the birds' power of flight, and in historical times has endowed his gods with either winged flight or movement through space by other means. Over the centuries he has feared the unknown. Mountains were mysterious and taboo places, inhabited by gods or demons. The illness or death occurring to people who dared to go to those higher places was the penalty meted out by these supernatural forces. Although man overcame his fears, it was only in relatively recent times that "mountain sickness" was finally understood to be due to lowered oxygen tension.

Even with his increasing knowledge and sophistication, man still cast his eyes upward. Finally, flight was achieved. What could be more natural than to believe that the ability to pilot a plane must be possessed only by supermen—men of exceptional physique, perfect reflexes, the eye of an eagle? How could these supermen be found? Who would logically be best fitted to find them? Doctors, of course.

EARLY ACCOMPLISHMENTS IN AVIATION MEDICINE

The early men in this field were our first flight surgeons, the pioneers in aviation medicine. I'm sure that they never thought of themselves as such, and probably some were convinced that the fad of flying would soon pass. However, being doctors, charged with this task of selection, they first had to have criteria for pilot selection. In this new field there were no guideposts, so as they sat and thought about the marvels of flight, they must truly have been influenced by the world-wide amazement at man's ability actually to fly at last. Proof that these pioneers felt pilots must be supermen was evidenced by their first set of physical standards issued in 1914. They were so rigid that virtually no one was capable of satisfying them. Needless to say, a second set was soon published. As our knowledge of both the physical and biological sciences has increased, so has our understanding of man's reactions and limitations in the essentially hostile environment of an expanded third dimension—the air—and our standards have changed.

An understanding of the reactions of man in flight may well be used as a definition of the specialty of aviation medicine. Whereas conventional medicine deals with the diseased individual in a normal environment, aviation medicine deals with the altered functions of the normal individual in an abnormal environment.

At first aviation medicine was concerned primarily with the development and enforcement of physical standards for selection. It was not long until it became obvious that the criteria were inadequate. Motivation and the ability to adapt were additional attributes essential for the successful cadet. The need for psychological research in these fields became increasingly important with the increased cost of pilot training.

The medical standards which had been developed by the process of armchair philosophizing were found not to be valid. Examples of these are well known to those of you who have been flight surgeons or have had long experience in pilot selection. The Barony chair, the Schneider Index, tests for depth perception—these are a few of the pilot-selection technics that have passed into history.

Other things complicated the aviation picture—things which fell into the field of medicine and, therefore, were added to the flight surgeons' duties. Accidents occurred, and were less and less often due to mechanical failure. These mishaps needed investigation, and physicians studied them to determine what had been the cause of the hu-

Dr. Britton is chief of the Medical Certification Division of the Federal Aviation Agency. He made this presentation at a meeting of the Scott County Medical Society on January 6, 1962.

man failure and to determine what could be done to prevent their repetition. In accident investigations, the cause of death was determined and often found to be a projecting knob or an insufficiently stressed seat. Flight surgeons, in conjunction with engineers, have, for example, delethalized cockpits and developed seat belts and shoulder harnesses. As planes became capable of higher altitudes, it has been the men in aviation medicine who have developed oxygen systems, cabin pressurization and pressure suits, without which sustained flights at high altitudes would have been impossible.

CIVILIAN AVIATION MEDICINE

To this point my remarks have essentially applied to the military, because it was there that aviation, as well as aviation medicine, developed. However, in 1926, it was determined that civil aviation had developed to a point that, in the interest of public safety, physical standards should be used in the licensing of civilian airmen. Dr. Louis Bauer was charged with the duties of developing physical standards for civilian airmen and of establishing a corps of civilian aviation examiners. His work was the beginning of the present Aviation Medical Service of the Federal Aviation Agency. He borrowed heavily from the military in devising the physical standards, and he borrowed well, for they remained practically unchanged until 1958. I do not mean that they were completely adequate or just for that whole period, but they served effectively.

When the FAA came into being, in 1958, and when more personnel were available to the Aviation Medical Service, immediate efforts were made to revise our standards in light of present medical knowledge.

The job of the civilian in aviation medicine is much like that of his brother physicians in the Services. However, there is a difference. One might say that now the military flight surgeon is "out of this world," concerning himself with investigations of space flight, radiation, closed environments, *et cetera*. There is much left for the civilian flight surgeon to do.

The physical demands on the civilian pilot are different from those on men in the Services. First and foremost, the Services are concerned with whether an applicant will be able to learn to fly, and secondly, whether he will, in all probability, be able to fly for 20-30 years. In civil aviation, we do not care whether an applicant can learn to fly or not, since there is no question of cost to the government. We are certificating him only for a maximum of two years, so his longevity as a pilot is not our concern. We do have a great interest in whether or not he has some quality or defect that may render him a hazard to public safety. It is with this in mind that our physical standards are written. For instance, the diabetic, taking a hypoglycemic drug, would be a hazard because of the possibility of a hypoglycemic reaction. However, our pholosophy is that, unless it can be shown that a pilot has some condition that makes him an increased risk, he should be certified. An example is the amputee who has successfully compensated for his defect and can demonstrate his ability to fly safely to the satisfaction of an FAA inspector.

The civilian flight surgeon is concerned with accident investigation for the same reasons as the military. The light-plane accidents have not been adequately or critically investigated until recently because of lack of personnel. The cockpit stressing in such planes is often inadequate. In many, no foresight has been used to eliminate knobs and other metal projections that could be lethal.

As civilian flight surgeons, we are tremendously concerned with physical standards. Much of our present concern is due to the fact that we have not been adequately staffed to do more that the simplest processing of medical examination forms. We have not had the facilities or personnel either to collect or to process the data available, and in consequence, the validity of our standards could not be determined accurately. Since the advent of FAA, our staffing has increased, and those of us who are involved in medical certification have thus been enabled to reevaluate our standards and policies and to begin revising them in the light of the improved diagnostic methods which are now available. Probably more than any other group in medicine, we are concerned with prognosis. This is the cornerstone of medical certification, for it is only on the basis of prognostic acumen that we are safe in granting certification to any but the completely healthy.

A fascinating field in aviation medicine deals with man's inability to cope with the hostile environment of flight. Safe, scheduled flights have been possible only because of the development of sensing instruments to supplement man's inadequate perception. These instruments enable the trained individual to overcome and disregard his own sensations, thereby maintaining his orientation. Man forgets and becomes careless, so the Air Force has found it necessary to give an annual refresher to all its pilots concerning the reasons for using instruments in flight. I know of no better presentation of this problem than the short Air Force film, "Spatial Disorientation in Flight" (A.F.TF 1-5251), and I recommend it to you. This film has shown some of the effects of an abnormal environment on normal individuals and the application of aviation medicine to these problems.

AVIATION MEDICINE AND THE CIVILIAN PASSENGER

As practicing physicians not in aviation medicine, your major concern is with your patients and their ability to withstand flight. Increasingly, planes are becoming the preferred method of travel and, consequently, there are more individuals desiring to move about by that means who have

varying types and degrees of mental and physical disabilities. Air travel has increased over 2,600 per cent in the last 20 years, with a coincident improvement in planes. As a result, it is becoming a more convenient method of transporting selected patients, provided that it is in the best interest of the patient and the public.

Military and civilian air carriers have had considerable experience in transporting patients. Between January, 1943, and April, 1947, the U. S. Air Force transported 1,261,933 patients, with a death rate during flight of only 3.4 per 10,000. Forty-three per cent of those who died were litter patients.

From 1930 through 1951, the airlines, with an entirely different population, had a passenger death rate of 0.6 per 1,000,000 passengers. Seventy-two per cent of the fatalities (52 cases) were cardiovascular, consisting of 20 myocardial infarctions, six acute cardiac failures, 21 nonspecific cardiac disease cases, and five cerebrovascular accidents. Seven deaths were caused by pulmonary diseases such as bronchopneumonia, pneumothorax, asthma, and pulmonary emboli.

These data indicate that the incidence of death in air travel is low, and also that patients with cardiovascular and pulmonary disease warrant special evaluation.

When it has been determined that a patient can be moved by air without a great likelihood of harm to him, some consideration must be given to the traveling public. The airliner is a common carrier, and its occupants must not be subjected to the unpleasant appearances, odors, or sounds of an ill patient, or to the ravings and rantings of a psychotic one.

The illness of the patient should be stable. Even though a plane anywhere in the U. S. can land near a modern medical center within 20-30 minutes, the general public should not be inconvenienced by such a nonscheduled landing. Furthermore, such an incident can be costly to an airline if the landing necessitates the dumping of thousands of gallons of fuel to reduce the plane's landing weight to within normal limits.

You are all human and must guard against those emotions that might replace good judgment. There are fatally ill patients who wish to return to their homes to die, or those who desire to go to some shrine in hope of a miraculous cure. These are pitiful cases, but we should evaluate them carefully before permitting them to fly on the airlines.

Many of the airlines do not have medical departments, and years ago they developed a empirical guide to flying fitness that is essentially valid today: A person who looks normal, feels normal, smells normal, and can walk up the steps to the plane can probably fly without difficulty. With the advent of pressurized equipment, these criteria can be expanded.

Actually, before making a decision regarding the safety of flight for a particular patient, it would be wise for the physician to know something of the plane, the duration of flight, the cabin altitude, the availability of oxygen and the training of the cabin attendants.

As planes have been made to go higher, their speed has increased and they encounter less turbulence. Thus flying has been made more attractive, but these developments would not have been possible if cabins had not been pressurized. It is interesting to note that something as basically simple as blowing ambient air into the cabin under pressure has been fraught with tragedy. In the first pressurized planes such as the B-29, the Constellation, and the DC-4, passengers and crew were lost through exploding bubbles and windows. On two occasions, the first high-altitude passenger jet, the Comet I, exploded the entire fuselage at high altitude because the fuselage was unable to withstand the pressure differential.

It is rare now for a plane to lose pressurization rapidly, and as far as I know, there have been none within the last few years that have even lost a window. Much slower decompression has occurred occasionally, however, because of compressor or outlet-valve failure.

Table 1 shows some operational statistics on some representative planes now in common use.

The cabin pressures are maintained by supercharger turbines that force ambient air into the

TABLE 1

OPERATIONAL FACTORS CONCERNING THREE AIRCRAFT COMMONLY EMPLOYED BY AMERICAN CARRIERS

	Aircraft		
	Boeing 707	Lockheed Electra	Douglas DC-7
Speed, criusing (miles per hour)	555	405	315
Climb, rate (feet per minute), average	1,000	1,800	500
Climb, rate (feet per minute), maximal	4,000	2,200	2,000
Descent, rate (feet per minute), average	1,600	1,500	1,000
Descent, rate (feet per minute), maximal	15,000	5,000	6,500
Range, statute miles	6,100	3,500	5,200
Cabin differential pressure, maximal (pounds per square inch)	8.6	6.5	5.45
Capacity, maximal (passengers)	189	104	99
Operating altitude, normal (feet)	25,000 to 40,000	18,000 to 25,000	15,000 to 25,000
Berths available*	(4)	None	(4)
Litter patients, accommodations for	(4)	(4)	(4)

* Availability varies among the various airlines.

cabin under pressure. Pressure within the cabin is controlled by automatically-regulated outlet valves so that the proper pressure differential between the cabin and the outside air is maintained.

Table 2 shows the atmospheric pressures at various altitudes.

Table 3 shows the pressurization capabilities of the planes listed in Table 1.

It can be seen, for instance, that the Boeing 707, which maintains a maximum pressure differential across the cabin wall of 8.6 pounds per square inch, will, at 22,500 feet, have a cabin pressure approximating sea level. It is only in excess of that altitude that the cabin pressure in a 707 drops, so that at 40,000 feet the cabin pressure becomes equivalent to atmospheric pressure at 7,500 feet.

In all commercial aircraft emergency oxygen is available for the passengers. In planes cleared to fly over 25,000 feet (707, DC-8 and 880), there are automatically-presented oxygen masks and oxygen at each seat to be used in case of depressurization at high altitudes. This oxygen is also available for use in an individual emergency.

To my knowledge, there is no scheduled airline that does not train its cabin attendants in first-aid, oxygen administration, and supplemental care for the normal delivery. Although the courses are brief, these young women function very well in an emergency.

Many of these emergencies arise in individuals whose normal physiology is altered by disease. An understanding of the response of the body to physiologic stimuli exerted by flying in the normal individual aids in determining how a particular diseased state may affect a patient when he is exposed to the adverse environment encountered in flight.

The most significant change that occurs in flight is the change in atmospheric pressure. Other conditions existing in flight are acceleration, turbulence, vibration, and noise. In addition, there are certain subjective factors that must be taken into consideration. Claustrophobia, fear, and apprehension tend to alter the threshold of susceptibility to the stimuli of flight and, consequently, alter the physiologic response to flight.

TABLE 2

AMBIENT (ACTUAL) ALTITUDES VERSUS CABIN ALTITUDES IN THREE AIRCRAFT COMMONLY USED BY AMERICAN CARRIERS

Ambient Altitude, Feet	Simulated (Cabin) Altitude, Feet in Boeing 707	Lockheed Electra	Douglas DC-7
40,000	7,500		
35,000	5,500		
30,000	3,700	8,000	
25,000	1,400	5,400	8,000
22,500	Sea Level	Sea Level	6,500
20,000		2,650	5,000
15,000		Sea Level	1,800
10,000			Sea Level
7,500			
5,000			

HAZARDS POSED BY CHANGES IN ATMOSPHERIC PRESSURE

1. *Dysbarism* refers to disturbances of physiologic function due to changes in barometric pressure. Certain preexisting conditions may contribute to the development of this condition.

(a) *Barotitis media.* This condition was formerly called otitis media and is a traumatic inflammation of the middle ear due to decreased pressure within the middle ear as related to ambient atmospheric pressure. This occurs during a transition from an environment of low to one of higher atmospheric pressure, as for example during the descent of an airplane. The orifice of the eustachian tube acts as a flutter valve which prevents gas from escaping from the middle ear. This tissue closes at rest and prevents air from entering the tube, and is opened when swallowing takes place. Edema of the tissues in and surrounding the ostium, a condition that occurs with nasopharyngeal inflammation, tends to prevent the opening of the eustachian tube. As the atmospheric pressure increases, a negative pressure builds up in the middle ear, and in severe cases it results in the production of a transudate in this chamber. Before the pressure is equalized, this condition can be very painful.

(b) *Barosinusitis.* The mechanics of this condition are very similar to those of barotitis, and one or more of the paranasal sinuses are affected. In nasal and sinus infections, the tumescence of the membranes reduces or obstructs the openings leading to one or more sinuses. The normal ventilation of the sinuses is interfered with, and with changes in ambient pressure, the pressure within the sinus can become either positive or negative in relation to the ambient pressure. This condition is

TABLE 3

ALTITUDE VERSUS ATMOSPHERIC PRESSURES

Altitude, Feet	Atmospheric Pressure Pounds per Square Inch
40,000	2.72
35,000	3.40
25,000	5.46
22,500	6.10
20,000	6.75
15,000	8.30
10,000	10.11
7,500	11.20
5,000	12.20
2,500	13.30
Sea Level	14.70

usually due to the ball-valve action of a mucus plug which prevents the movement of gas in one or the other direction. Fortunately, the severe form of this condition is relatively rare in civilian flying because pressure changes are insufficiently rapid or pronounced.

Severe barosinusitis is one of the most excruciatingly painful conditions afflicting man. There is the story of the bombardier who, during the war, was thus afflicted during a rapid descent. The pain was severe enough to cause him to bail out of the plane without his chute. That type of radical treatment is not recommended.

(c) *Expansion of Trapped Gases.* Gases behave in accordance with Boyles Law which, roughly, states that volume of gases vary inversely with the pressure. Air entrapped at sea level will increase 1.2 times in volume at 5,000 feet; 1.5 times at 10,000 feet; and 2 times at 18,000 feet. *The gastrointestinal tract:* The expansion of gas within the gastrointestinal tract is not of particular significance under ordinary circumstances in civilian flying because of the relatively small changes in pressure taking place in the pressurized cabins of today's planes. However, even this small change can be significant in the presence of some pathologic conditions. *Pulmonary system:* The presence of gas within the pleural cavity or mediastium may lead to extremely serious complications because of the expansion of this gas. *Neurologic system:* The expansion of air which has been introduced into the cranium or spinal canal for diagnostic purposes and which still is present at the time of flight can lead to compression of critical areas within the central nervous system.

2. *Hypoxia.* With increased altitude, barometric pressure decreases, and, as a consequence, there is a reduction in the partial pressure of alveolar oxygen. To compensate for this, there is normally an increased pulmonary ventilation so that there is only a 5 per cent decrease in arterial oxygen saturation at 10,000 feet. With cabin pressures such as they are, it can be seen that unless there is a reduction in the oxygen-carrying capacity of the blood or in the vital capacity, or changes in the alveolar structure, there should be no significant drop in oxygen saturation of the blood.

Acceleration, noise and vibration are not significant factors in civilian air transportation.

3. *Turbulence.* Motion sickness is caused primarily by turbulence and is believed due primarily to the effect of linear vertical motion upon the vestibular organs. Modern planes, particularly jets flying at high altitudes, do not encounter much turbulence, and there has been a consequent marked decrease in air sickness. Psychological factors contribute significantly to lowering the threshold of predisposition to motion sickness, and must be taken into consideration.

The drugs that are now available as antagonists to motion sickness are well known. Some other technics for decreasing sensitivity to motion are flying at night to reduce visual stimulation, sitting in a reclining position, and occupying a seat over the center of the wing of the airplane. Many passengers, the first time they fly, tend to remain seated during the entire flight. With faster and larger planes, the duration of flight has shortened to such a degree that this is no longer particularly significant.

EVALUATION OF PATIENTS FOR FLIGHT

With this brief background, let us consider how to evaluate specific patients. It might be well to expand on the rule of thumb that was mentioned earlier.

Persons who have malodorous conditions, gross disfigurement, or other unpleasant characteristics which might offend fellow passengers should not be transported unless physical isolation can be assured.

Persons who have contagious diseases or are acutely ill or in critical condition should not fly on a common carrier.

Persons who cannot take care of their own physical needs should travel only if accompanied by a suitable attendant.

Persons whose behavior might create a disturbance or be hazardous to other passengers should not fly. This rule applies also to individuals who might become emotionally disturbed.

These are, of course, generalizations. To be more specific, contraindications to air travel may be divided into groups according to the systems involved.

Cardiovascular Contraindications. Individuals with cardiac disease should be evaluated on the basis of their cardiac reserve, which in flight is taxed by two factors: hypoxia and emotional stress. The effect of the latter can be evaluated only by the patient's physician. Generally, it may be said that a person who is able to walk 100 yards and climb 12 steps without manifesting symptoms of cardiac embarrassment can fly safely in the modern pressurized aircraft. Those people who have minimal reserve should have oxygen immediately available and should be instructed to ask the cabin attendant for oxygen with the appearance of the first symptoms. This group includes those who exhibit (1) cyanosis, (2) severe disturbances of rhythm, (3) persistent arrhythmia resulting in recurrent prostration, (4) syncope, (5) marked cardiomegaly, (6) extreme valvular stenosis, (7) convalescent myocardial infarction, or (8) recent recovery from congestive heart failure, to mention the most common. One should evaluate these patients very carefully, taking into consideration the maximum cabin altitude to be maintained on their particular flights.

The emotional stress can be minimized by careful and complete instructions. The effect of incomplete instructions was demonstrated to me on a recent jet trip from Los Angeles. Not long after takeoff, when the captain announced that we had reached our cruising altitude of 31,000 feet, the man sitting next to me immediately became dys-

pneic and called for oxygen. With his first breath through the mask his respiratory rate became normal. He had been warned about the effect of altitude on his oxygen supply, but had not been told that the "cabin altitude" remained within safe limits, in this case about 6,000 feet. After I had explained this to him, he no longer needed oxygen, but the poor man had been nearly scared to death.

The American College of Chest Physicians has published a detailed discussion of the transportation of patients by air at actual altitudes or cabin altitudes of 6,000 and 8,000 feet. In short, it recommends that those with major cardiac conditions with adequate cardiac reserve at sea level may travel safely up to 8,000 feet, whereas those who have marginal myocardial oxygen should be limited to 6,000 feet.

Patients with histories of previous or existing thrombotic or venous disease should be instructed against remaining immobile for long periods. The resulting venous stasis is believed to be an important factor in the development of "passenger phlebitis," which may result in pulmonary infarction.

Bronchopulmonary Contraindications. There is no serious contraindication to air travel for asthmatics if their condition can be controlled by medication and if oxygen is available. It should be remembered, however, that in high-altitude jets the cabin air is almost without moisture. This dryness will, of course, tend to thicken bronchial secretions. As a consequence, long jet trips may prove embarrassing to the chronic asthmatic unless medication is given him to help liquify the secretions.

Pneumothorax. Patients with a pneumothorax should not be allowed to fly until an adequate time has been allowed for absorption. The presence of a large stable or an unstable pneumothorax requires special evaluation to determine whether the expansion of the entrapped gas at the known cabin altitude will have a deleterious effect.

Vital Capacity. Persons whose vital capacity is 50 per cent or less do not do well at a flight or cabin altitude of over 5,000 feet. Persons with pulmonary emphysema or fibrosis should have a careful evaluation to determine whether their pulmonary function is limited to an extent that might prove embarrassing in flight.

Air Hunger. Two types of air hunger may be manifested in flight. One is a physiologic compensatory response to oxygen lack. The other is the hyperventilation resulting from anxiety. Hyperpnea due to decreased oxygen tension is promptly relieved by oxygen, whereas that due to emotion will not be relieved, and the breathing of 100 per cent oxygen will tend to wash out the carbon dioxide more rapidly and lead to carpopedal spasm and possible unconsciousness. In extreme cases a rebreathing bag may be necessary, but reassurance is usually sufficient.

Gastrointestinal Difficulties. As atmospheric pressure decreases, the expansion of intestinal gases is usually taken care of by increased absorption, eructation or expulsion of flatus. Occasional problems are encountered with persons with a spastic gut. Distension of the gut in such persons can result in severe pain, which in some cases progresses to a shock-like condition. Antispasmotics prior to flight will help such persons. People who have recently undergone stomach or intestinal surgery should be carefully evaluated before being allowed to fly, for the pressure of expanding gases could result in disruption of a recently performed surgical procedure. At least 10 days should elapse after any abdominal procedure before one permits a patient to fly. A patient who has undergone a colostomy should be warned of the problem of expanding gases, and instructed to have a larger colostomy bag, or an accompanying attendant should change the dressings more often.

Neuropsychiatric Problems. One should evaluate neuropsychiatric cases, bearing in mind the safety of the passengers and crew. Those patients whose behavior is unpredictable or who require heavy sedation or restraint should not be allowed on commercial air transports. Ataractics should minimize the problem, however.

Epilepsy. Epileptics are especially susceptible to seizures during air travel, probably because of reduced oxygen and apprehension, with consequent hyperventilation. Adequate sedation and reassurance before flight and, if possible, travel with a companion who understands their situation, are means of making air travel safe for such people.

Ear, Nose and Throat. Individuals with acute respiratory infections, polyps or redundant mucosa should be warned against flying. Milder situations can be well handled by means of adequate nasal vasoconstriction, provided that the individuals aerate their middle ears during descent, using the Valsalva maneuver if necessary.

Persons who have sustained mandibular fractures and have their jaws wired together should not travel by air because of the danger of vomiting. However, if it is imperative that they do so, one of several quick-release mechanisms should be used, so that in case of impending emesis the jaws may be opened.

Miscellaneous Problems. Anemia or a blood dyscrasia resulting in less than 8.5 Gm/100 ml. of hemoglobin, or a red cell count of below 3,000,000/cu. mm. produces anemic hypoxia. Individuals with such a condition should not fly. Patients with sickle cell disease, which occurs in about 5 per cent of the Negro population, often experience sickling and hemolysis as a consequence of moderate hypoxia at elevations of 8,000 to 14,000 feet. More than 30 cases of sicklemia, with instances of abdominal pain, left upper quadrant pain, nausea and vomiting, and splenic infarction are reported to have occurred in flight. In some instances these symptoms have occurred in Negoes at 4,000 to 6,000 feet of simulated altitude in pressure chambers. Electrophoresis of their hemoglobulin identi-

fied the presence of hemoglobins S and C. Such individuals should be warned to notify the cabin attendant at the onset of abdominal pain, for the early administration of oxygen prevents further complications. Negroes would do well to determine whether they have this trait before flying.

Infants do not have a stabilized respiratory system until they reach about their seventh day. When older, however, they tolerate hypoxia better than adults. Old people with well compensated cardiovascular and respiratory systems experience no difficulty while flying on modern planes.

During the treatment of an injured eye or after a major operation on the eye, air may have been injected into the anterior chamber to preserve the shape of the globe. Such patients should not be permitted to fly, for expansion of the contained air may result in a disastrous increase in intra-ocular tension.

Since the retina has a higher oxygen demand than any other tissue in the body, patients with serious ophthalmic conditions should be provided with oxygen if the cabin altitude exceeds 5,000 feet. It has been demonstrated that at altitudes of more than 10,000 feet, hypoxia produces dilation of retinal and choroidal vessels, a measurable increase in intra-ocular tension, and a reduction of pupil diameter. These effects, either singly or in combination, may be disastrous to the injured, postsurgical or glaucomatous eye.

Most airlines will permit the blind patient to board with his seeing-eye dog, provided that the dog is muzzled and on a short leash. It is important to orient such a patient in the aircraft to prevent confusion in case of emergency.

During the first eight months of a normal pregnancy, there are no contradications to flying, and such patients are accepted by most airlines. However, any woman in the last month of her pregnancy may be accepted if she presents a certificate to the airlines from her physician stating that an examination within 72 hours of departure has shown her to be physically fit for transport by air, and stating the estimated date of delivery.

Diabetics should be well controlled. They should carry a supply both of their insulin or other hyperglycemic drug (if necessary for their regular control) and of sugar or candy. People with hyperglycemia are more susceptible to hypoxia than normal individuals are.

CONCLUSION

I have not covered all possible conditions, but the short review of the physiologic aspects of the normal responses to the abnormal environment encountered in flight should give some clues to the method of evaluating the physical condition of a patient in respect to flight. It can be seen that with the exception of some serious physical disabilities and a few minor ones which might be complicated by changes in barometric pressure, most patients can tolerate flight satisfactorily. In fact, flight may be the preferable method of travel for many sick people.

A Progress Report on Promise, Inc.

In a letter dated October 1, 1962, and addressed to Dr. Richard F. Birge, secretary of the Iowa Medical Society, acknowledging receipt and expressing thanks for his dues-free extension of membership, Dr. Pak-Chue Chan, formerly of Ames, reported as follows on the progress of his work just outside the city of Hong Kong:

"Please express my deep gratitude to the members of the Society who have been so generous toward me by sending me the JOURNALS, which I have been sharing with my son-in-law and daughter, who are also doctors here. . . .

"The team of Promise, Inc. arrived here about one year ago, with three American-trained and British-licensed doctors. . . . After a year, we now have two medical clinics in Kowloon City, and one mobile clinic in the Kowloon New Territories where a half-million refugees and local farmers are living. Our mobile clinic dispenses not only medicine but also Iowan Hi-Bred seed corn, sorghum, soybeans, insecticides, etc. In that agricultural district we have established a Sunday school, a gospel chapel, a medical clinic and an agricultural demonstration station. We have x-ray, a clinical laboratory, and druggists, nurses and other assistants.

"In the months of August and September our three clinics saw and treated over 3,000 cases of all sorts of illnesses. The recent cholera, polio and typhoid epidemics increased our work greatly, and the horrible typhoon 'Wanda' left over 200 dead and 10,000 injured. We have been working six days a week in Kowloon City, and on Sundays with our mobile clinic in the countryside. No vacation for any of us until we come back to Iowa.

"Our working capital is very small, for since we left Iowa a year ago we have received less than $5,000 for the whole project. . . . We have been spending our reserve funds to carry on the work, and we three doctors are receiving no salaries. My wife and I have been living on our Social Security and ISU pension fund payments. The other two doctors have had to borrow money from relatives to live on until help comes. This is the way we carry on our work, but it makes our hearts very happy that we can help others here.

"About 1,500,000 refugees from Red Hungry China are coming daily to fill up this tiny British colony. Here we really witness suffering, poverty and disease such as could exist nowhere else. We wish more doctors could come out to help, even for a short time."

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Sex Determination

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MANKIND'S INTEREST is human intersexuality has been intense since remotest antiquity. The subject has had an appeal for poets, artists and others of the laity, as well as for scientists, over the years. The Graeco-Roman culture is particularly rich in lore about the intriguing possibilities, and many stories, poems and objets d'art concerning them have been preserved. Whether the statues of Hermaphroditus with male and female counterparts represent actual human abnormalities is debatable, but after viewing a patient with Klinefelter's syndrome, one is impressed by the remarkable similarity between the graphic pictures and a possible human manifestation.

The lively current medical interest in human intersexuality reveals that the subject has lost none of its appeal for the scientifically curious, and the discovery of the chromatin test for nuclear sexing by Dr. Murray Barr and his associates has contributed enormously to the present revival. The development of tissue-culture technics for cultivating human cells outside of the body has most fortunately meshed with the improvements in developing satisfactory and relatively uncomplicated methods of chromosomal counting and analysis. Increased clinical awareness has provided additional cases for study, and the full cry of the hunt is now heard throughout the medical literature, as the tenacious and avid interallied disciplines seek an explanation and remedies for this perplexing human disorder. Any attempt to describe the present status of the inquiry could be likened to the account one might give of the first quarter of a horse race, with no knowledge of how the mounts will finish.

CRITERIA FOR DETERMINING SEX

When we decide whether something or someone belongs to one class or to another, all of us tend to rely upon the most obvious of characteristics, and either deliberately or ignorantly to neglect any contradictory bits of evidence. Thus, it is familiar practice among the laity to equate external genitalia and body type with maleness or femaleness. Often these indicators are proved too broad and inconclusive, especially when testes are found in the labia of a phenotypic female, or when the chromatin test is reported as positive and gonadal biopsies reveal testicular architecture in a phenotypic male.

As might be suspected, many criteria can profitably be employed, and it is quite universally agreed that five morphologic and two psychologic indices are applicable in the determination of sex. The five morphologic ones are: the chromosomal or genetic evidence, the gonadal evidence, the morphology of the external genitalia, the morphology of the internal genitalia and the hormonal status. The two psychologic ones are the sex of rearing (the clothes worn, the hairdo, etc.), and the gender role (the sex with which the individual identifies himself).

The chromosomal or genetic sex is determined at the time the ovum is fertilized by the spermatozoon. The spermatozoon bears either an X or a Y sex chromosome, and the union results either in an XX (a human female) or an XY (a human male). The ovum, in either case, contributes only one chromosome to the pair. All subsequent differentiation of the individual's sexual apparatus appears to be dependent upon this genetic constitution.

The gonadal sex arising from the bipotential gonad is determined by the histologic nature of the differentiated organ. The testicular or ovarian architecture can be recognized, with its appropriate germinal and/or sustentacular elements. (The recognition of gonadal stroma as indicative of the nature of the gonad appears to me to be unsafe.) As far as is known, the differentiation into either a testis or an ovary seems to be guided by the genetic constitution.

The morphology of the external genitalia is obviously the criterion most frequently employed by the laity, midwives and obstetricians in assigning sex. The sex of rearing is established by this decision, and the individual is then brought up either as a male or as a female. Clinical practice, however, has repeatedly shown that occasionally this method is in error, and it is a tribute to the resiliency and vigor of the human psyche that patients with ambiguous or abnormal external genitalia can often cope with their deformity more or less successfully, and adjust psychologically to their sex of rearing and gender role. Since as far as is known, the human organism does not possess instinctual patterns of sex identity, the

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sex of rearing is determined by human choice. The differentiation of the external genitalia into male or female types appears to be under the control of the gonads, although Jost has shown that in the absence of gonadal tissue, all castrated embryos of experimental animals evolve as females.

The morphology of the internal genitalia is determined by the nature of the gonads. Although the internal genitalia are seldom used in assigning sex, they are important criteria, particularly if deformed or atrophied portions are to have importance in the sexual function of the individual. If the internal genitalia are contradictory, the sex status is highly equivocal.

The hormonal environment of the person is obviously a controlling factor in the sex status, and although the testes normally secrete androgen and the ovaries estrogen, contradictory hormonal secretions can occur, as in the testicular feminizing syndrome; or other organs such as the adrenals may produce contradictory hormones, as in the common form of female intersexuality. The production and maintenance of secondary sex characteristics are, indeed, most dependent on the hormonal substances arising from the gonads.

As mentioned previously, the two psychologic criteria are the sex of rearing and the gender role. The name, the shoes, the clothing—even the color of clothes in some instances (blue for baby boys) —communicate to the viewer the sexual status of the individual. The gender role is more intimate, and is perceived, in many instances, only by the person himself—the attraction felt or not felt toward the opposite sex, the erotic contents of dreams, etc. These together with mannerisms, preferred types of entertainment, etc. all determine a person's self-identification, either as a male or a female. Money and his associates have come to the conclusion that orientation as a male or female is not instinctive, but based upon the sex of rearing. Thus clothes make the man—not his testes or any other morphologic criteria! It is the rare exception when the gender role does not follow the sex of rearing, and the two appear to be cohesively bound together as complementary psychologic attributes of sex orientation. This phenomenon becomes of therapeutic importance to the physician when he is confronted with a problem of intersexuality beyond the age of early childhood, and faces a decision involving reassignment of sex. Morphologic structures can be altered, but whether successful psychologic sex reversal can be accomplished after the sex of rearing and the gender role have been firmly implanted remains highly debatable.

TABLE I

CLASSIFICATION OF INTERSEXES*

Class	Sex Chromatin	Gonad	External Genitalia	Internal Genitalia	Hormone Status
I. Agreement between chromatin test and gonadal sex.					
A. Male intersex					
1. Simulates male	–	testes	male or ambiguous	female	male
2. Simulates female	–	testes	female	atrophic or absent	female
B. Female intersex					
1. Adrenal hyperplasia	+	ovaries	female	female	male
2. Drug (progestin, etc.)	+	ovaries	male	female	female
3. Maternal neoplasm	+	ovaries	male	female	?
4. Idiopathic	+	ovaries	ambiguous	female	female
II. Disagreement between chromatin test and gonadal sex.					
A. Gonadal dysgenesis					
1. Childhood					
a. See text (Hutchings)	–	ovaries	female	female	?
b. See text (Bunge & Bradbury)	+	testes	male	male	?
2. Adult (Klinefelter's syndrome)	+	testes	male	male	castrate
B. True intersex	either	mixed	either or ambiguous	mixed	?
III. Chromatin test, no gonadal sex = gonadal aplasia					
A. Childhood					
1. Bonnevie-Ullrich syndrome	–	absent	female	female	?
2. See text (Burns)	+	absent	male	absent	?
B. Adult					
1. Turner's syndrome	–	absent	female	atrophic female	castrate

* Intersexuality indicates a contradiction in morphologic criteria of sex. Such cases as chromatin-positive Turner's syndrome, and chromatin-negative Klinefelter's syndrome have no contradictions and are therefore not to be considered as representative of intersexuality.

DEFINITIONS

Intersexuality classifies the patient in whom one or more contradictions are found in *morphologic* criteria of sex. Note that the sex of rearing and the gender role are not applicable considerations here.

Male intersex (male hermaphroditism) indicates that the patient has gonads which are testes, and that the chromatin test is negative. (The terms *hermaphroditism* and *pseudohermaphroditism* are gradually being supplanted by the expression *intersex.*)

Female intersex indicates that the patient has gonads which are ovaries, and that the chromatin test is positive.

True intersex is applied to those individuals who have histologic evidence of both testicular and ovarian tissue, and who may or may not have contradictions of morphologic sex criteria other than the gonadal.

Gonadal aplasia indicates the congenital absence of gonadal tissue.

Gonadal dysgenesis indicates congenitally faulty development of gonadal tissue, which, however, can be identified as testis or ovary on the basis of germinal and sustentacular elements.

TABLE II

Is this a case of intersexuality?
↓
Evaulate the morphologic criteria of sex by physical findings, radiography, endoscopy, laboratory studies and chromatin test.
↓
Contradiction of sex criteria indicates intersexuality.
↓
Chromatin Test

Negative	True Intersex	Positive
1. Male intersex gonads = testes	Testicular and ovarian tissue	1. Female intersex gonads = ovaries a. Adrenal hyperplasia b. Drug during pregnancy c. Maternal ovarian tumor d. Idiopathic
2. Gonadal aplasia Bonnevie-Ullrich syndrome Turner's syndrome		2. Gonadal aplasia gonads absent and male genitalia
3. Gonadal dysgenesis gonads = ovaries		3. Gonadal dysgenesis gonads = testes a. Adult (Klinefelter) b. Childhood

Sex reversal is a term used by experimental embryologists to indicate a state in which the gonad resembles a sex that is opposite to genetic intent. Since the term implies a process already initiated and then reversed (apparently never the case in human material), its use in clinical situations is ambiguous and confusing. Faulty gonadogenesis, as far as can be determined, is the result of various degrees of development of the cortex and the medulla of the primitive gonad, and is not the result of retrogression from a previously differentiated state.

Krebs' classification of true intersexes has been abandoned as too complicated. However, since cases in the literature are classified in this manner, the terms used are as follows: *Bilateralis* indicates that ambisexual tissue is present on both sides of the body; *unilateralis* indicates that such ambisexual tissue is present on just one side of the body; *lateralis* means that male gonadal tissue is present on one side and ovarian tissue on the other; *completus* indicates that gonadal tissue is present on both sides of the body; and *incompletus* connotes an absence of gonadal tissue on one side.

CLASSIFICATION OF THE INTERSEXES

To provide a classification (Table 1) which will parallel diagnostic procedures (Table 2), the chromatin test and the gonadal sex will be used as nosologic determinants. Three main classes evolve. Class 1 is represented by those cases in which agreement exists between these criteria; Class 2 includes cases in which disagreement exists; and Class 3 consists of those cases in which the nature of the chromatin test can be determined, but in which there is no evidence of gonadal sex. Where possible, in reference to those disorders which bear the appellation *syndrome,* the appropriate term will be used (i.e., "Turner's syndrome"), since those names are well established in the literature and there is little to be gained by introducing a whole new set of designations. However, several other anomalies are listed—ones for which the word *syndrome,* with its connotation of ubiquity, would be inappropriate. For example, in Class 2 one finds "chromatin negative gonadal dysgenesis of childhood." Dr. John Hutchings[1] has reported such a case. Similarly, "childhood chromatin-positive gonadal dysgenesis" is represented by a case reported by Bunge and Bradbury.[2] In Class 3, "chromatin-positive gonadal aplasia" is listed. Dr. Edgar Burns[3] has shown me the material from such a case, but his report on it has not yet been published. It is impossible, within the range of this presentation, to describe the individual characteristics of each case of intersexuality, but at the conclusion of the essay the reader will find a list of ready references for his further perusal.

THE DIAGNOSIS OF INTERSEXUALITY

As shown in Table 2, the most important diagnostic maneuver is the assignment of any particular clinical problem of sex determination to the

realms of intersexuality or non-intersexuality. It must be constantly borne in mind that the cleavage point is the determination of whether a contradiction exists among the morphologic criteria of sex. Thus, a Turner's syndrome with a chromatin-positive test, or a Klinefelter's syndrome with a chromatin-negative test c*ould not* be assigned to the area of intersexuality. If no contradiction can be shown, then there is no intersexuality. Indeed, a masculine person who had no contradictions in the morphologic criteria of sex, but whose gender role was that of a female, might erroneously be thought of as an intersex. Some cases of intersexuality do not present themselves as problems of sex determination, and are discovered only by a high level of clinical diagnostic acumen. Thus the obvious fades into the not-so-obvious.

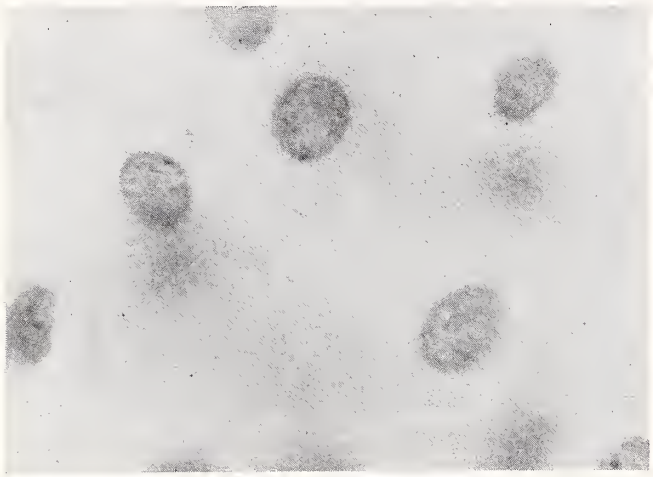

Figure 1. A photomicrograph of an oral smear preparation showing a number of cells with the planoconvex chromatin body at the nuclear membrane. Over 40 per cent of the cells had such a body, and the test was reported as chromatin-positive.

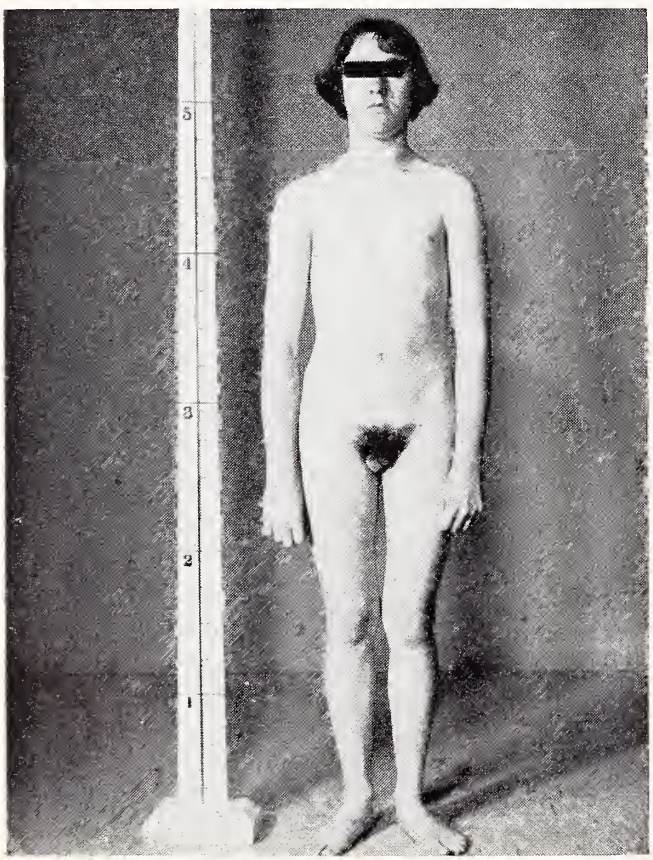

Figure 2-A. A 13-year-old girl with male intersexuality simulating a male. Note acne and enlarged phallus.

In the newborn, it is impossible at times to assign the sex as soon as the anxious parents and relatives wish, and one must fend off their demands with patience, knowing that it is better to spend a few tense weeks rather than commit the infant to a life of misery as a result of decisions born of haste and misinformation.

The diagnostic aids which the physician can employ will consist of pertinent historical facts, significant signs elicited during the physical examination, radiographic and endoscopic examinations, laboratory determinations, surgical explorations and microscopic examinations of properly-fixed gonadal tissues.

As one takes the history, he is wise to pay special attention to information about other siblings or blood relatives who may have had problems suggesting intersexuality. For example, several observers have reported family studies in which siblings have had such problems, and I have personal knowledge of a family in which three young sisters all have male intersexuality. An inquiry about the use of progestins or androgens during pregnancy may establish the etiology of the intersexuality, since there is a fairly widespread use of progestins in cases of threatened

Figure 2-B. A photograph of the external genitalia showing enlarged phallus, and separate vaginal and urethral meati.

abortion. Knowledge of a maternal ovarian tumor during pregnancy would obviously be of diagnostic importance.

Among the physical abnormalities which might lead the physician to consider a diagnosis of intersexuality are eunuchoid proportions of the body, short stature, height above the normal expectancy in boys, greater span than height, webbed neck, lack of beard, "furcap" distribution of head hair, hypertelorism, mongolism, gynecomastia, inguinal hernia in girls, and abnormal masses in the genital labia, which in some cases prove to be testes of normal size, disturbances in configuration of pubic hair, ambiguous genitalia, hypospadias and bilaterally undescended testes. Particularly in infants, the presence of ambiguous genitalia accompanied either by hypertension or salt-losing status would be highly suggestive of female intersexuality due to congenital adrenal hyperplasia. In other infants, edema of the hands and feet, cutis laxa, etc., may be indicative of Bonnevie-Ullrich syndrome.

Radiography of the lower urogenital tract will supply additional evidence for an interpretation of the abnormalities present. It is common practice to place the patient in the semilateral position on the x-ray table and then, if possible, to catheterize the urethra and leave a retention catheter in the bladder. Air is placed in the bladder, and while the x-ray film is exposed, a radiopaque jelly is rapidly injected into the urogenital orifice. In the interpretation of such films, the contrast medium used will aid the physician in determining the structures portrayed. In other circumstances, I have found it useful to provide an additional small opening below the balloon of a retentive type of catheter, and after the urethra has been catheterized to distend the balloon, to apply slight traction and to inject a radiopaque fluid into the catheter. The radiograph thus obtained will outline the bladder and any anomalous genital structures arising from the urethra. Another method com-

Figure 2-C. A photograph of findings at operation. Just below the upper left retractor is the uterus, with oviducts extending laterally. The forceps points at a normal-appearing left testis. Below the right oviduct is a whitish, abnormal-appearing right gonad. Both gonads contained gonadoblastomas.

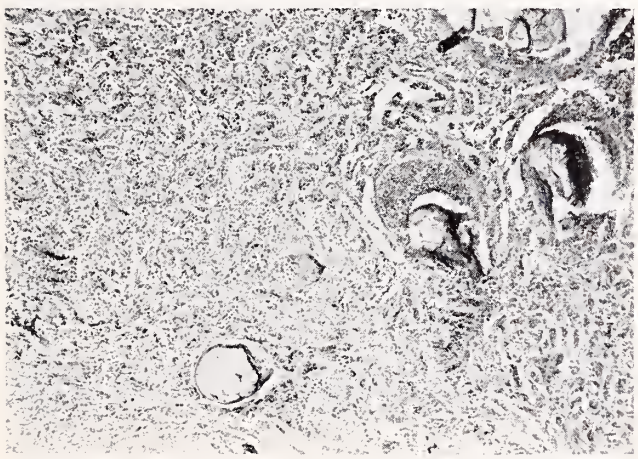

Figure 2-D. Photomicrograph of the right gonad which had been completely replaced by this tissue. Cords of small, deep-staining cells are shown, and interspersed among them were larger masses of cells, in the center of which were calcific bodies resembling the Call-Exner type.

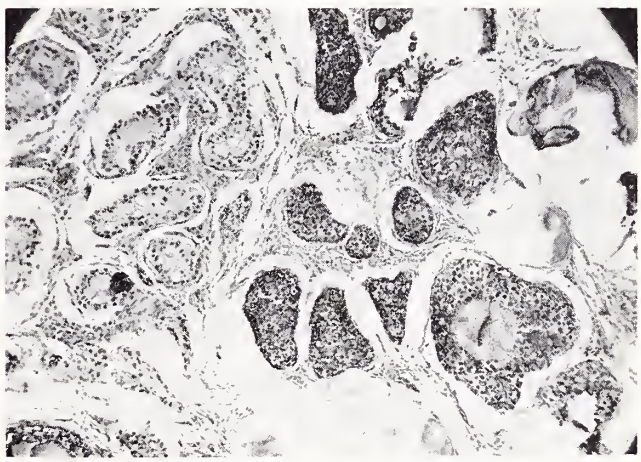

Figure 2-E. Photomicrograph of the left gonad showing neoplasm on the right and testicular tissue on the left.

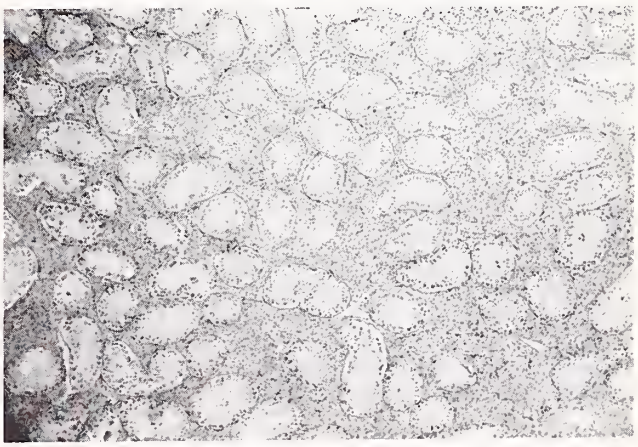

Figure 2-F. Photomicrograph of the uninvolved portion of the left testis. Most of the seminiferous tubules were sterile and contained sertoli cells. There was hyperplasia of the interstitial cells, which probably were producing androgen and thus causing virilization of the patient.

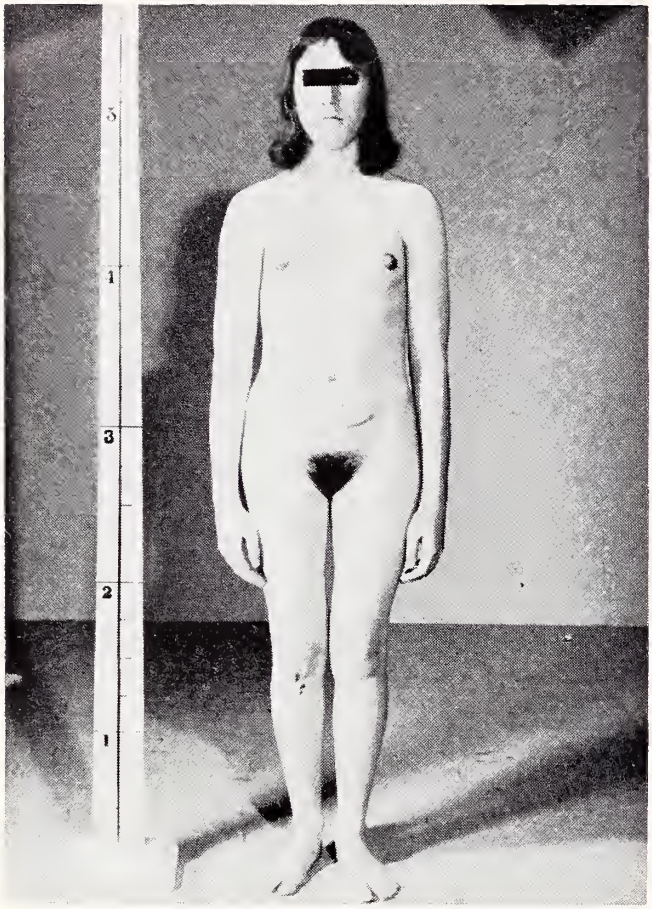

Figure 2-G. Same patient after one year of cyclic estrogen therapy.

monly employed is to inject the radiopaque jelly directly into the urogenital orifice while the x-ray film is being exposed.

With the panendoscope, the physician can achieve direct visualization of the urogenital tract, thus confirming the x-ray evidence, if the interpretation of the x-rays has been inconclusive. There are times when the radiopaque materials have not entered the genital tract, and endoscopy will reveal such a failure. It has been our practice at the State University of Iowa to use the panendoscope rather routinely, along with radiography, in all suspected cases of intersexuality.

Laboratory studies which can be used routinely are the chromatin test and the determination of 17-ketosteroids and gonadotrophin excretions in a 24-hour sample of urine. During the first three weeks of life, the level of 17-ketosteroid excretion in the urine is elevated in normal infants and in those with female intersexuality due to adrenal hyperplasia. The determination of the presence of urinary pregnanetriol or pregnanetriolone will be helpful where such a disordered adrenal state is suggested, for these substances are not found in the urine of a normal infant. The suppression of elevated 17-ketosteroids by cortisone or the excretion of the above-mentioned two substances is indicative that the suspected case of intersexuality is due to congenital adrenal hyperplasia. The level of gonadotrophin excretion has little clinical importance in children, but it is elevated, usually to castrate levels, in the Turner's and Klinefelter's syndromes.

The chromatin test was first discovered by Barr and Bertram,[4] in 1949, when they were able to detect a nuclear sex difference in cat nerve cells. In applying the method to human material, they employed the spinous cell layer of the skin obtained by biopsy. Later, Moore and Barr described the oral smear method which is widely used today. Cells of the vaginal mucosa, urinary sediment and amniotic fluid have been suitable for study. Davidson and Smith, in 1954, found that an average of 2-3 per cent of neutrophil leukocytes have an accessory lobule in females, but that such an abnormality is not present in similar cells of the male. Although this method is just as reliable, it has not been so widely used as the oral smear method.

Somatic cells suitable for study can be obtained from the ora mucosa if one gently scrapes the area either with a glass glide or a spatula and spreads the material out upon a glass slide. Fixation in ether-alcohol or 95 per cent alcohol should be done *immediately*, before any drying can occur. Immersion in the fixative for 20 to 30 minutes usually suffices. Cresyl violet and hematoxilyn are satisfactory stains; however, in our laboratory the method suggested by Guard[5] is used, and here the chromatin body is stained red and the background is green.

The interpretation of an oral smear preparation (Figure 1) consists of finding out how many per hundred of suitable nuclei possess the planoconvex body at the nuclear membrane. In males, fewer than 10 per cent of the cells have this body; in females the percentage will be 30 or over. Dr. Barr[6] has recently described more than one chromatin body within a cell, and the chromatin bodies are one fewer than the number of X chromosomes. Thus, one chromatin body = XX; two chromatin bodies = XXX; etc.

A word or two of caution about the chromatin test. The test should be reported as "chromatin-negative" or "chromatin-positive," rather than as "male" or "female," for in some patients the chromatin test result may be opposed to their sex of rearing or gender role, and if they should learn the contents of a poorly worded report, they would experience considerable unnecessary anxiety. Second, the chromatin test aids the physician in determining general areas of intersexuality. For example, a "boy" with bilaterally undescended testes may be chromatin-negative, but the possibility of male or true intersexuality has not been established. As pointed out in the classification of intersexes, one general class consists of patients whose chromatin tests contradict their gonadal sex.

Determining sex may range from making a

comparatively easy decision to making a most difficult one based upon an exhaustive study. We must bring to this human problem all the knowledge, skill, honesty, frankness and sympathy we possess—all of the qualities that characterize a good physician.

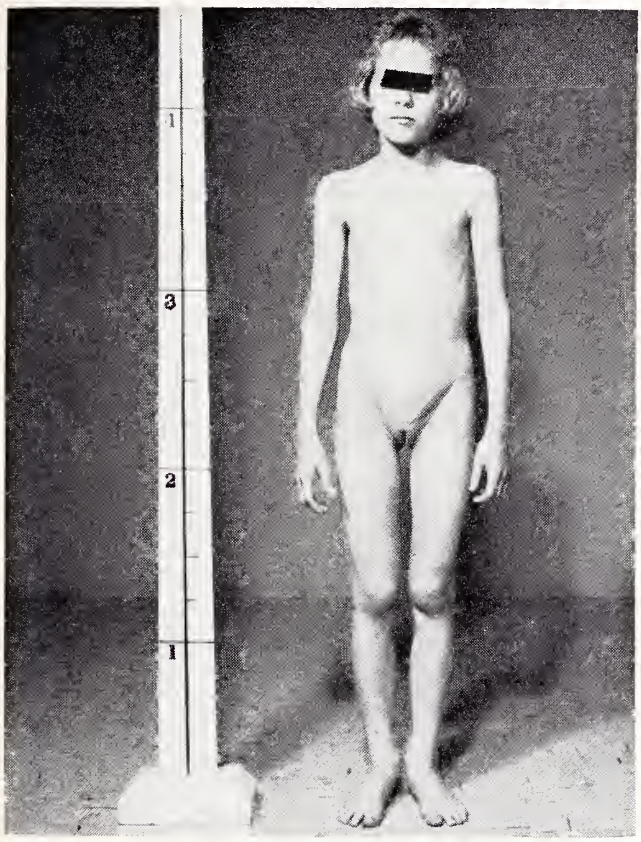

Figure 3-A. A 7-year-old girl with male intersexuality simulating a female. Chromatin test was negative. At the time of abdominal exploration, no internal female genitalia were found, and two normal-appearing testes were removed. Initial complaint had been inguinal hernia, and clinicians should be alert to the diagnosis of intersexuality when they encounter inguinal hernia in girls.

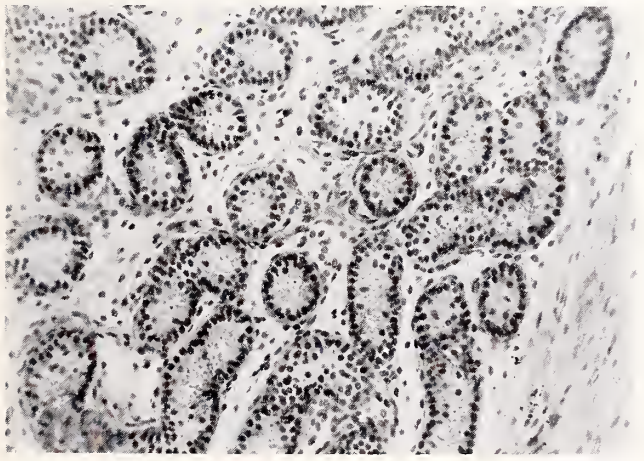

Figure 3-B. Photomicrograph of the tissue removed from one of the testes. Semiferous tubules containing spermatogonia are seen; luminal formation has not been established, and the interstitium is undifferentiated. Histologic picture is indistinguishable from testes of a 7-year-old-boy.

ILLUSTRATIVE CASES

1. *Male intersexuality; simulates a male; chromatin is negative and the gonads are testes. (Class 1,*

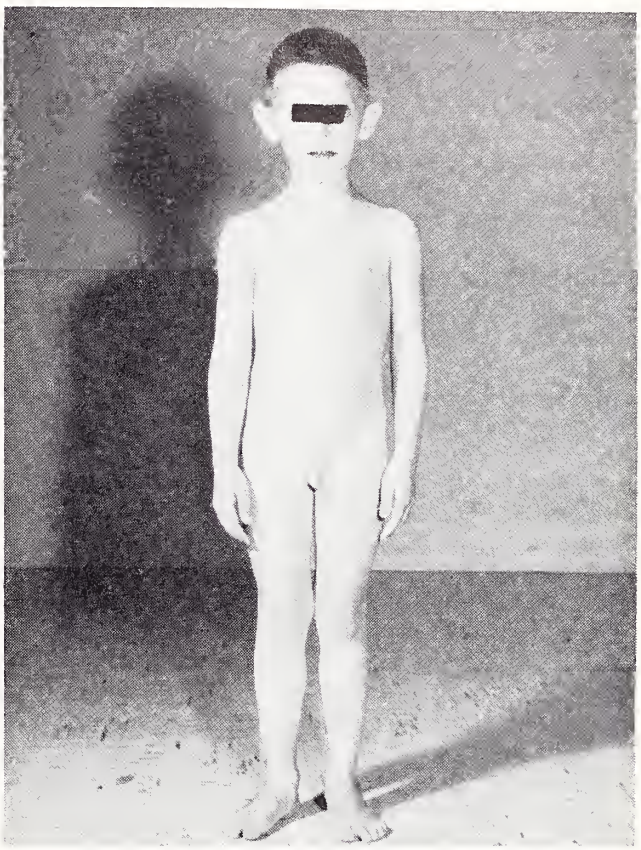

Figure 4-A. A five-year-old child who had been previously seen for ambiguous genitalia. Chromatin test was interpreted as male type, and the male sex was assigned, since "testes" could be felt in the inguinal regions. Subsequently, the hypospadias was surgically corrected, and bilateral orchidopexies were performed later.

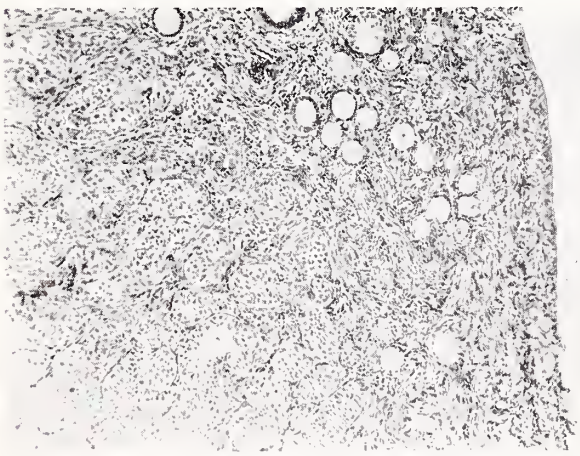

Figure 4-B. Photomicrograph of the tissue from the right gonad showing both ovarian and testicular material, and establishing the diagnosis of an ovotestis. Note oocyte within seminiferous tubule, lower left. The same type of tissue was found in the biopsy material from the left gonad.

wherein chromatin test and gonadal sex agree.)

K. W., a 13-year-old girl, had noticed increasing enlargement of the clitoris accompanied by black facial hair, acne and deepening of the voice two years prior to consultation. She expressed a desire to be like her two older sisters (Figure 2-A). Physical examination showed ambiguous genitalia (Figure 2-B) with separate urethral and vaginal ostia. This was confirmed by endoscopy, and in the vaginal vault a small cervix was visualized. The chromatin test was negative. The excretion of 17-ketosteroids was within the normal range, and gonadotrophins were present in small amounts. A presumptive diagnosis of male intersexuality was made, and an exploratory laparotomy performed to determine the nature of the internal genitalia and the gonads (Figure 2-C). Normal-appearing oviducts and a uterus were found, as well as a normal-appearing left testis and abnormal right gonad. Both gonads were removed, since they were suspected of causing virilization of the patient. The clitoris was amputated. The right gonad consisted of a gonadoblastoma replacing all gonadal tissue (Figure 2-D). The left testis had been almost completely replaced by the same type of neoplasm (Figure 2-E). The uninvolved portion of the testis consisted of seminiferous tubules containing sustentacular cells with only an occasional germinal cell, and hyperplastic interstitial cells (Figure 2-F). Following operation, the excretion of gonadotrophins reached castrate levels, but promptly subsided following institution of cyclic stilbestrol therapy. Figure 2-G shows the patient after one year of therapy; acne had disappeared, the face had slenderized, and the breasts were enlarged.

A good rule of thumb applied to cases of male intersexuality is as follows: If the patient has no Mullerian elements, the testes will produce feminization at puberty. If Mullerian elements are present (as in this case), the testes will produce virilization at puberty. The necessity of abdominal exploration is quite evident, and gonadectomy is definitely indicated to control the hormonal status and eradicate neoplasia. Previous reports of gonadoblastoma have indicated that such neoplasms arose in "female" patients who in all likelihood were actually cases of male intersexuality.

2. *Male intersexuality simulating a female; chromatin is negative and the gonads are testes. (Class 1).*

N. D. was a seven-year-old girl on whom bilateral inguinal hernioplasties had been done four months prior to consultation. At the time of the surgery, testes had been found in the hernial sacs, and the organs had been placed in the abdominal cavity. Physical examination showed a normal-appearing young girl with normal female external genitalia (Figure 3-A). Endoscopy visualized a vagina and a separate urethral canal, but no structure resembling a cervix was seen. The chromatin test was negative; the level of excretion of 17-ketosteroids was within the normal range, and gonadotrophins were not present. Through a lower abdominal incision, the pelvis was inspected, and no structures resembling oviducts or uterus were found. A testis, with its epididymis, was found immediately proximal to each internal inguinal ring, and they were removed. No evidence of ducti deferentia was found. Microscopic examination of the gonads showed normal-appearing testicular architecture for a child of seven years (Figure 3-B).

These testes would have feminized the patient at puberty, as contrasted with the predictive hormonal activity of virilization in the previous case. Since adequate hormonal replacement is available and since some such testes undergo malignant degeneration, gonadectomy is advised. At puberty, estrogen therapy should be given to promote the appearance of female secondary sex characteristics. Menstruation, of course, will fail to occur, and the patient will be sterile.

3. *True intersex, Class 2, wherein the chromatin test does not agree with gonadal sex.**

D. K. was a five-year-old child who previously had been seen for ambiguous genitalia consisting of a bifid empty scrotum and hypospadias. A chromatin test was interpreted as negative, and the male sex was assigned since "testes" could be felt in the inguinal regions. Subsequently the hypospadias was surgically corrected, and bilateral orchidopexies were performed later. Routine biopsies of the testes were taken, and microscopic examination showed them to be ovotestes (Figure 4).

This case points up the desirability of removing tissue from all gonads exposed, and further illustrates the fallacy of assuming that a patient is a "male" when the chromatin test is negative and externalized gonads are "testes."

REFERENCES

1. Young, H. H., Genital Abnormalities, Hermaphroditism and Related Adrenal Disorders. Baltimore: Williams & Wilkins Company, 1937.
2. Wilkins, L.: The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence. Springfield, Charles C Thomas, 1957.
3. Jones, H. W., and Scott, W.: Hermaphroditism, Genital Anomalies and Related Endocrine Disorders. Baltimore, Williams & Wilkins Company, 1958.
4. Overzier, C.: Die Intersexualitat. Stuttgart, Georg Thieme, 1961.
5. Severinghaus, A. E.: Sex chromosomes in human intersex. Am. J. Anat., **70**:73-93, (Jan.) 1942.
6. Hutchings, J. J.: Complete sex reversal: case report. J. Clin. Endo. & Metab., **19**:375, 1959.
7. Bunge, R. G. and Bradbury, J. T.: Ten-year-old boy with positive sex chromatin test. J. Urol. **78**: 775-779, (Dec.) 1957.
8. Burns, E.: Personal Communication.
9. Barr, M. L., and Bertram, E. G.: Morphological distinction between neurones of male and female, and behavior of nucleolar satellite during accelerated nucleoprotein synthesis. Nature (London), **163**:676, 1949.
10. Guard, H. R.: New technic for differential staining of sex chromatin, and determination of its incidence in exfoliated vaginal epithelial cells. Am. J. Clin. Path. **32**:145-151, (Aug.) 1959.
11. Barr, M. L. and Carr, D. H.: Sex chromatin, sex chromosomes and sex anomalies. Canad. M. A. J. **83**:979-986, (Nov. 5) 1960.
12. Barr, M. L. and Carr, D. H.: Correlations between sex chromatin and sex chromosomes. Acta-Cytol. **6**:34-45, (Jan.-Feb.) 1962.

* See also "The Klinefelter Syndrome"—R. G. Bunge & J. T. Bradbury. J. IOWA M. SOC., **51**:217-221, (Apr.) 1961.

The Laboratory: Personnel, Controls and Some Procedures

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Iowa City

I HAVE BEEN ASKED to discuss the general topic "Laboratory Procedures for the Practitioner." At first thought this appeared to be a relatively simple assignment, but I have found that it is not. I shall make some remarks regarding laboratories generally which I think pertinent, and finally shall touch briefly on a few laboratory procedures.

It has been said regarding lab work generally that each procedure should be performed as close to the patient as it can be done with greatest accuracy. For some procedures, this may mean in your office, but for some others it may mean sending the specimens to Chamblee, Georgia. The final decision as to where the test shall be performed is yours to make, in each instance. There is no common or standard practice.

You all understand this matter of closeness to or distance from the patient, but whether a test will be performed more accurately in one place than in another is not a simple question. The answer depends upon many things such as the kind and quality of equipment and other facilities, the technical personnel available, and the qualifications and interest of the physicians in charge.

An old rule of pathology, and one which I repeat often to my associates, is that if a procedure isn't of the highest degree of accuracy, it had better never be done or reported. A clinician can serve his patient better by relying on his own good clinical judgment alone, than by obtaining laboratory work which may be inaccurate and completely confusing to him.

One of the important factors in this whole scheme is the physician in charge. One result may suggest another. One result may appear incompatible with others or with the condition of the patient, and may suggest a need for checking equipment, reagents or technic. Nothing in medical technology is constant or mistake-proof. Whoever assumes responsibility for a laboratory, nominally or in any other way, must pay attention constantly to technics, controls and results. This rule applies whether the laboratory is in a doctor's office or in a hospital.

Dr. Cross is acting chief of the Laboratory Service at the Iowa City Veterans Administration Hospital, and pathologist at Mercy Hospital. He gave this paper at the 1962 Annual Meeting of the Iowa Medical Society.

QUALIFIED AND UNQUALIFIED TECHNOLOGISTS

One of the most important of these responsibilities of yours is the matter of technics and their utilization. Under this heading I include the technologist. This matter of the technologist is one of my favorite subjects, and I wish to discuss it in more detail. I am director of the School of Medical Technology at the State University of Iowa, and both in that capacity and as a pathologist I have many occasions to be sharply disappointed at your lack of understanding about those people. There was a day when sketchily educated people —usually girls—worked in doctors' offices, and by repetition or "on the job training" learned to do the few relatively simple laboratory procedures that were done. Those people became known as technicians. They did well at that time. We still have some such people in laboratories as assistants or lab helpers, and when performing limited, specific procedures or working under supervision, they can do many of them very well. This is especially true in specialized or research laboratories, where only a few procedures are done over and over. Some of these people have become excellent general technologists. By and large, however, as single technicians in a general laboratory or as supervisory technicians, they are usually "in over their heads."

The title "technician," today, is about as specific as the title "doctor." You are disappointed when a patient doesn't know the difference between a doctor chiropodist and a doctor surgeon; I am disappointed that some of you don't know the difference between a short course "Minnesota technician" and a registered medical technologist—who incidentally, may also have been trained in Minnesota.

What am I talking about? Many boys and girls just out of Iowa high schools enter schools in neighboring states to study laboratory or x-ray technic, or both, each year. The courses range in length from one month to one year. These schools vary considerably, since they are all private and since there are no legal or otherwise-required standards regarding curriculum, staff or facilities. The classes are usually conducted in converted

residences, and the students obtain specimens from one another. The tuition is invariably quite high. The staff consists of one or more persons of variable qualifications.

High schools in Iowa are sent large volumes of posters and folders from these schools each year. Contact men will call if permitted. Often the high school staff does not know what a technologist is, and cannot advise the students. The local doctor doesn't know that this recruiting is going on—and sometimes is unable to offer an opinion about the school in question when he is asked for one. The literature these high school students receive promises a rosy future. The tuition is assembled, the students enroll, and they find out only after they are well along in the course that they aren't learning much. Many of you hire them without knowing how much they *haven't* learned, and you often pay them as well as, or sometimes even better than, registered technologists. This seems particularly likely if the job you expect them to do is connected with research.

I challenge each of you to ask your high school principal how much of this literature is coming into your town!

Pathologists, at least, throughout the U. S. are greatly concerned about these schools and about some of the frauds being committed in the name of "technology"—upon youngsters, some of whom are in your own communities.

I recommend that you read an article in the December, 1961, issue of MODERN HOSPITAL[1] which exposes some of these commercial schools. The list of approved schools, on the other hand, is published each year in the educational number of the JOURNAL OF THE AMA. There are enough *good* schools. Help us fill them. More especially, let us be thankful that we do not have this diploma-mill business in Iowa, and let's help stop Iowa high school students from being misguided into such institutions in adjacent states.

Now, who are the registered technologists? They must be high school graduates. They must have had some liberal-arts college training. Prior to January of this year, two years was the minimum; it is now three years. In that period they must have completed certain specific courses: 16 semester hours of chemistry; 16 semester hours of biological science courses; and three semester hours of mathematics. Additional hours in these fields and several specific courses are strongly recommended. These people have then satisfied the same requirements that you met as pre-medical students. (A survey was made at one state university not long ago, and the grade-point average of the "pretechs" was slightly higher than that of the "premeds.")

They must then attend an approved school of medical technology for one full year (12 months, not nine). That school must meet all requirements of the Registry of Medical Technology, specified jointly by the Registry, the AMA and the American Society of Clinical Pathologists. These requirements include a specific curriculum, a minimum time which must be spent on academic teaching, minimum and specific qualifications of teaching personnel, and the quantity and variety of teaching material. After completing that fourth year, they must all take the National Registry Examination. This is given twice yearly at many places throughout the U. S., at a specified time of day, and each group is given the examination under the supervision of a pathologist. The flunk rate is fairly high.

When they have passed that examination, they are issued a certificate and may then use the initials M.T. (ASCP) after their names. Those letters mean "Medical Technologist, American Society of Clinical Pathologists." Please remember this, and do not confuse it with many other titles and initials, particularly a mere "M.T." They are certainly not the same. Insist on seeing the applicant's certificate when you are about to hire a technologist and look for the technologists' certificates in the laboratory that you patronize.

College credit is given by many schools for the year in the School of Medical Technology, so that after passing the registry, these persons receive a college degree in addition to the M.T. (ASCP). There are now about 17 approved schools of medical technology in Iowa, most of which have college affiliations. Many of them do not have full enrollment. By assisting in the counseling of high school students and directing them to this type training, you not only will help avert many personal tragedies in your community, but will be helping greatly to improve the quality of clinical pathology in Iowa.

During the last several years, pathologists and technologists have been planning the establishment of schools for laboratory assistants. Qualified high school graduates will be eligible for enrollment. The course will be of one or more years' duration. Specific minimum requirements as regards staff, curriculum and volume experience will be formulated; schools will be approved and inspected annually; and a national final examination will be given. Definite progress is being made, and I believe these schools will become a reality in the future.

QUALITY CONTROL

Besides selecting and supervising capable technologists, the responsible physician concerns himself with the accuracy of all procedures performed. This is frequently referred to as quality control.

At the outset, may I say that technologists are people doing laboratory determinations on people. You often think that if they were careful enough, they could duplicate their results exactly time after time. They can't and thus there is an expected range from one determination to the next which we call "standard deviation." If all of you were to measure my height, using the same tape measure, you would get a maximum plus-minus range of well over half an inch. The tolerable or permissable standard deviation in each of the many determinations we do is not the same for each one. It will be influenced by such things as

specificity or clarity of the end points in the chemical procedures involved, the multiplicity of procedures involved in a given test, the accuracy of equipment including its calibration, the specificity or purity of reagents, and the constancy of equipment-function depending upon such things as gas pressure, room temperature, voltage, water pressure, etc., as well as by the care and skill exercised by the technologist.

With the best possible control of all these factors, multiple determinations are performed on the same sample to determine what the tolerable limits of variation are. These are charted, and by calculation we determine what one, two or three standard deviations are. Thereafter, control specimens are run each day or with each procedure. If the control is outside the predetermined limits of accuracy—i.e., in excess of two standard deviations —the technic must be investigated from A to Z, the faults corrected, and the examination repeated.

You are all aware, of course, that all physiologic normals are not single values but are ranges from low to high. You realize, further, that in evaluating laboratory results, you must add these to the standard deviation.

With this very brief discussion of what a technologist is and what quality control is, I leave it to you to decide where the most accurate laboratory work can be performed closest to the patient.

CERVICAL SMEARS

As chairman of the IMS Subcommittee on Exfoliative Cytology, I think it appropriate that I make a few remarks about the vaginal or cervical smear.

I should like to re-emphasize one point which I brought out two years ago when I participated in a seminar on that subject here. If this procedure is to be of value, the cervix, including a zone on both sides of the external os, must actually be scraped, and not just daubed. A wooden Ayers spatula is much better for this purpose than a flexible plastic or metal one, because it scrapes better, and because the tissue sticks to it so that it can be transferred to a slide without being lost. A little bleeding will usually occur—and it should—but by this means you will be truly sampling the cancer-bearing area.

In these last few years, throughout this country, we have learned a great deal about the evaluation of this material. Impressions are now more accurate; pathologists generally have improved. One reason they appear to have improved is because follow-up diagnoses are better than they used to be. Then, the smear was picking up early, small, preinvasive, non-ulcerated lesions which could not be identified by inspection. After the suspicious report was returned to the patient's physician, punch biopsies were obtained, perhaps from four quadrants. Malignancies were found in some of them, but we now know that the punch technic permitted a rather high percentage of them to be missed. I want to emphasize that it is almost imperative to remove a thin diagnostic cone, including both sides of the external os around the entire circumference of the cervix. The pathologist now sections the entire cone, and the early, grossly invisible malignancies which were missed with the interval biopsy technic are being found in a high enough percentage of cases so as definitely to establish the value of this procedure in picking up early malignancies.

I have been tremendously impressed with the finding that the great majority of these very early malignancies arise just inside the external os—a zone that is frequently missed in punch or segmental biopsies. The cone biopsy gets this zone for study.

This procedure of cervical smears has become established. It will stay with us. I recommend its use.

THE UTILITY OF FALSE POSITIVE TESTS FOR SYPHILIS

In recent years—stemming partially from discussions relative to minimum admission procedures for accredited hospitals and partially from the fact that syphilis had been on the decrease—there has been some thought of abandoning the routine admission serology. Yet, in our literature we are informed each week about the increasing incidence of syphilis in the U. S. The incidence is said to have increased three fold in the last five years and 1½ times in the last year. This increase apparently has not hit Iowa very hard as yet, but I am sure it will. That is one good reason for retaining the procedure.

I believe, however, that we should not necessarily think of the screening procedures performed in hospitals as specific for syphilis, but as a valuable procedure for the diagnosis of other diseases as well. In the routine screening procedures, we try to keep sensitivity and specificity properly balanced so as to diagnose most cases of syphilis. Today, however, with the highly sensitive screening tests, you may expect more of the so-called "false positive" reports than of positives actually due to syphilis. Using these tests as evidence of syphilis is rather like using the sedimentation rate as a test for tuberculosis. You get more false than true positives. If you are told of an increased sedimentation rate in a patient who certainly does not have T.B., you don't say that the laboratory must have made an error, but realize that it is up to you to find another reason for the elevation, by means of history, physical examination and perhaps further lab procedures. You should react similarly when you get a positive V.D.R.L., Kahn, Kline, etc., that you are sure doesn't represent syphilis.

Some reagin, although a minute amount, is probably present in the serum of most every person. This is a fraction of the gammaglobulins which are concerned in immune reactions. This fraction is deranged, increased or at least involved in many diseases. For that reason, whereas fewer than one per cent of normal persons will have a positive reaction with our sensitive screening tests,

the incidence will be much higher in patients with any of a great many diseases. All positive reactions should be studied further, by means of a variety of procedures including even the most specific treponema pallidum complement fixation and the treponema pallidum immobilization tests, unless there is definite clinical history and evidence to support the earlier results.

My plea, then, is this: Don't quickly label the original positive on an initial sensitive screening test as a "lab error." Rather, think that instead of syphilis, it may indicate one of the commoner diseases (Table 1).

TABLE 1

COMMON DISEASES CAPABLE OF CAUSING "FALSE POSITIVES" IN SYPHILIS SCREENING TESTS

	"Positive"
Infectious hepatitis	20+%
Infectious mononucleosis	30+%
Virus pneumonia	20 %
The collagen diseases generally	5 %
Lupus erythematosis specifically	30+%
Upper respiratory infections including "colds"	5-20 %
Leptospirosis	10-20 %
Malaria	100 %

This list in Table 1 does not by any means include all of the possibilities, but with the exception of the last one, it is made up of rather common diseases, one or more of which may be on your patient list every day. Viewed with the results of additional procedures and with the history and clinical findings, most "false positives" can be identified as such. Let us not overlook the diagnostic significance of the biologic false positive (BFP), however. It isn't an error; rather it indicates a significant condition of the serum. The incidence of this type of "false positive," in diseases such as lupus erythematosis, is high enough to make it one of the better laboratory procedures for diagnosing that disease.

HEMATOLOGY

I believe it is appropriate for me to make a few remarks about hematology. There has been a great deal of discussion about the red blood cell count, and many hospitals have dropped it as a routine procedure. The opinion in those places is that a good hematocrit and hemoglobin determination makes the RBC unnecessary. This may well be true, if the hematocrit and hemoglobin are found to be within normal limits. The erythrocyte count does have a rather large standard deviation. The standard deviation in a good laboratory is about 200,000 to 300,000, and it can't be entirely eliminated by means of electronic counters. But this count is necessary for the calculation of the mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration. In other words, it is essential to a complete evaluation of a hematologic problem, even though minor. Thus it is of real value, I think, and if dropped as a routine, it should certainly be done if the hemoglobin or hematocrit is even mildly abnormal.

There have been many recent advances in our understanding of hematology. Perhaps some of the greatest advances have been made in the immunologic aspects of anemia, but morphology has also been clarified in several aspects. I have been greatly impressed with our better understanding of the lymphocyte-plasma cell-monocyte series. Transitions from one of these to the other in all directions has been well demonstrated, and has taken much of the mystery out of in-between "atypical" cells without names. We have recently recognized the atypical lobed nuclei and pseudopod formation and the fragmentation of lymphocytes as due to steroid therapy.

Bone marrow examinations have become commonplace, and the interpretation of them has improved greatly. We are becoming aware that the leukemia we know as an established disease is a long time in the making, just as the atypical and *in situ* malignant changes in the cervix may precede the visible carcinoma by five or more years. As hematologists, we recognize the myeloproliferative panhyperplasia of bone marrow, or myeloproliferative syndrome, as the frequent preliminary phase. Frequently the abnormal hyperplasia of one element becomes dominant after a time, and a so-called specific type of leukemia is diagnosable.

For example, with Dr. George Anderson, I recently followed such a patient who, in a period of three years, passed from the non-specific myeloproliferative stage to a stage of polycythemia vera, then passed to a stage of chronic myelogenous leukemia, and finally, at autopsy, was found to have a mixed myelogenous and thrombocytic leukemia.

The technic of bone marrow aspiration is not difficult. It can be done on ambulatory patients, and should be used for early diagnosis and not just for final confirmation. I do this procedure in the manubrium, just below the episternal notch. I forewarn the patient as to what I am about to do, and when the needle is in, I aspirate with great force and get back a small amount of almost pure marrow. Both smears and a button for sections are prepared. The finding of malignant cells in the sections is not rare. A great amount of early information of both a positive and a negative nature can be obtained from them. I recommend greater use of this very good diagnostic procedure.

TRANSAMINASE DETERMINATIONS

Much has been written about transaminase determinations in the recent past. I think that when properly used, they are good procedures. The two types used principally are the SGOT (serum glutamic oxaloacetic transaminase) and the SGPT (serum glutamic pyruvic transaminase). As with tests for syphilis, some people are trying to make them too much of a "specific," which they are not. We shall consider the first of them—in this

discussion, at least—the SGOT. This is an enzymatic determination which requires about two hours for clotting, incubation and technologist's work after the specimen reaches the laboratory.

The enzyme transaminase is released when tissues are undergoing *in vivo* necrosis. First, it is significant that some tissues release more of it than others do when they are necrosed totally or partially. In the order of the amounts of transaminase they release, these tissues are the liver, the heart and the pancreas. Second, the amount released will depend roughly upon the amount of tissue necrosed or seriously damaged. Third, the rate of release will be significantly elevated about three hours after necrosis starts, but will become negligible in about three days. Besides being a qualitative procedure, therefore, it is somewhat quantitative, it indicates the severity of damage, and it also indicates the progress of damage.

We might say that a level of under 40 units is within normal limits; one that is between 40-60 is in the twilight or "yes-no" zone; and one that is above 60 is significant.

At the time of a coronary occlusion and an infarction of muscle, the level will be under 40. In about three hours it should reach 60, and when 12 hours have elapsed it will be above 100. If the infarct does not extend, the level will start down by the second day, and will return to 60 or less after four days. If it stays up, the thrombus is probably propagating, the margins of the infarct are being extended, and I would be very apprehensive about the patient. If you keep a record of this procedure, both in quantity and in time, it becomes a good indicator.

Another procedure of this nature is the lactic dehydrogenase determination for the investigation of chest pain and diagnosis of pulmonary vascular thrombosis, with or without infarcts. As yet, I have not had enough personal experience with this to vouch for it unqualifiedly, but Wacker and others,[2] at Harvard and the Peter Bent Brigham Hospital, have related their experiences with it and have recommended it highly. With pulmonary thrombosis, the SGOT does not rise. The SLDH does, however, whether there is infarction—i.e., tissue destruction—or not. It will move from a normal range of definitely under 100 during the first day, reach its peak in about 48 hours and slowly return to normal within 10 days—if there aren't more infarcts or if the lesion does not extend and get larger.

We talk much about pulmonary disease, but as a pathologist I do not think we take it seriously enough. Particularly in the older patient who already has pulmonary function compromised by arthritis, emphysema, anthracosis and elastosis, even a little pulmonary edema and certainly pulmonary infarcts have a tremendous bearing on ultimate recovery. (Infarcts must be important, be-

APPROVED SCHOOLS OF MEDICAL TECHNOLOGY IN IOWA

Name and Location of School	College Affiliation	Pathologist in Charge
Mercy Hospital, Cedar Rapids	Mount Mercy College	R. E. Weland, M.D.
St. Luke's Methodist Hospital, Cedar Rapids	Coe College	R. F. Looker, M.D.
		F. M. Skopee, M.D.
Mercy Hospital, Council Bluffs	Creighton University	A. S. Rubnitz, M.D.
	College of St. Mary	A. L. Sciortino, M.D.
Quad City Hospitals	Monmouth College, Monmouth, Illinois	
	Marycrest College	
	St. Ambrose College	
	State University of Iowa	
Mercy Hospital, Davenport	As above	W. S. Pheteplace, M.D.
St. Luke's Hospital, Davenport	As above	W. S. Pheteplace, M.D.
Broadlawns Polk County Hospital, Des Moines		F. C. Coleman, M.D.
Iowa Methodist Hospital, Des Moines		J. W. Green, M.D.
Mercy Hospital, Des Moines	Drake University	F. C. Coleman, M.D.
	State University of Iowa	
	Iowa State University	
Finley Hospital, Dubuque	University of Dubuque	C. M. Strand, M.D.
Xavier Hospital, Dubuque	Viterbo College	R. G. Vernon, M.D.
	Briar Cliff College	C. M. Strand, M.D.
St. Joseph's Mercy Hospital, Fort Dodge	Fort Dodge Community College	R. C. Dunn, M.D.
VA Hospital, Iowa City	State University of Iowa	K. R. Cross, M.D.
Ottumwa School of Medical Tech.		D. O. Holman, M.D.
St. Joseph Mercy Hospital, Sioux City	Morningside College	H. J. Caes, M.D.
St. Vincent's Hospital, Sioux City	Morningside College	
	Briar Cliff College	J. M. Brown, M.D.
Allen Memorial Hospital, Waterloo	Wartburg College	F. Dick, Jr., M.D.
St. Joseph Mercy Hospital, Dubuque		R. G. Vernon, M.D.
		C. M. Strand, M.D.

cause we see a lot of them in your patients who come to autopsy.) I recommend your watching the SGOT and the SLDH, as regards both levels and times, in diagnosing and following pulmonary infarctions.

Cell destruction in the liver does give rise to large quantities of transaminase. The determination is, therefore, a sensitive procedure. Levels in the "twilight zone" can occur with the liver anoxia of cardiac failure. A rise above 80, however, may be one of the earliest signs of infectious hepatitis, for example. If so elevated, it indicates that tissue damage is in progress. When it declines, it is of prognostic significance insofar as continuation of cell damage is concerned. It will tell you nothing of the healing process, other than to indicate that active destruction of liver tissue has stopped.

In all situations, transaminase determinations are procedures that should be repeated, as one attempts to discover and measure the extension or continuation of tissue destruction, or the cessation of it.

REFERENCES

1. "Commercial Medical Technology Schools." Modern Hospital, **97**:98-112, (Dec.) 1961.
2. Wacker, W. E. C., Rosenthall, M., Snodgrass, P. J., and Amador, E.: Trial for diagnosis of pulmonary embolism and infarction. J.A.M.A., **178**:8-13, (Oct. 7) 1961.

Leptospiral Meningitis:

Report of a Case and Epidemiologic Follow-Up

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State Center

HUMAN LEPTOSPIROSIS due to Leptospira pomona was first noted in the United States in 1951,[1] and in Iowa in 1952.[2] The literature regarding human leptospirosis was comprehensively reviewed in the Iowa report. During the past decade, numerous studies on leptospiral infections in the United States have added to the information of epidemiology, [3, 4] animal reservoirs,[3, 5-8] clinical manifestations,[9-11] and the value of various therapeutic agents.[9, 12, 13]

Considering the widespread serologic evidence of the disease in the animal population in Iowa,[14-16] it is apparent that the paucity of reported human cases attests not to their failure to occur, but to a lack of recognition of the milder forms of the disease. One need not await signs of jaundice before suspecting leptospirosis. The present concept is that classical Weil's disease, a severe form of leptospirosis, may have been caused by any of a number of serotypes. It must be emphasized that the leptospires are capable of causing a wide spectrum of diseases, varying from a mild, influenza-like form to a more severe and fulminating hepatic form.[17] Regardless of the infecting serotype, prognosis depends primarily upon the virulence of the organism and the age of the patient.[13]

Dr. McCulloch and Mr. Braun are staff members at the Institute of Agricultural Medicine, at the State University of Iowa College of Medicine, and Dr. Robinson is a private practitioner in State Center, Iowa. The epidemiologic and laboratory studies involved in this case were supported in part by Grant E-3133 (C1) from the National Institutes of Health, U. S. Public Health Service.

CASE REPORT

This report presents epidemiologic and clinical data regarding a case of Leptospira pomona infection in an Iowa farmer. M. P., a white male, age 36, noted chills and fever during the evening of February 17, 1961. The patient worked a half day, on February 18, 1961, and then consulted Dr. Robinson. The following clinical and laboratory features were noted: temperature of 101.6° F. with chills; blood pressure of 130/70 mm. Hg; pulse rate 102/min. and regular; red blood cell count 4,820,000/cu. mm.; hemoglobin 14 Gm/100 ml.; and white blood cell count 9,500/cu. mm. A moderate pharyngitis was evident, and generalized myalgia was present, particularly in the right shoulder area. A blood specimen obtained on the date of examination was tested for brucellosis, leptospirosis, and heterophile antibody, with negative results. The leptospiral agglutination procedures used have been described previously.[18] The other serologic tests were performed by the State Hygienic Laboratory. The succeeding serologic tests for leptospirosis are summarized in Table 1.

The patient remained brucella- and heterophile-antibody negative. Bicillin, 1,200,000 units, was administered intramuscularly, and the patient returned home. He attempted to do his evening chores, but didn't complete them, and went to bed. That evening, he had a temperature of 103.6° F., and experienced severe chills and some difficulty in breathing. A sedative was given him, and ice packs were applied. During a home visit on Feb-

TABLE I

PATIENT'S SERUM ANTIBODY LEVELS DURING THE YEAR FOLLOWING CLINICAL ONSET OF DISEASE

Date Blood Sample Taken	Day Post-Onset	Leptospira Test Results		
		Pomona	Ictero.	Canicola
2-18-61	1	neg.	neg.	neg.
2-25-61	8	neg.	neg.	neg.
3- 4-61	15	160	20	neg.
3-11-61	22	320	20	neg.
3-18-61	29	160	10	neg.
3-25-61	36	80	neg.	neg.
5- 2-61	74	40	neg.	neg.
3-20-62	396	40	neg.	neg.

ruary 19, Dr. Robinson found some improvement in the patient's condition. His temperature had declined to 99.0° F., and the generalized myalgia previously noted was absent. However, severe neck pain associated with moderate stiffness was noted. On this date, the patient received procaine penicillin, 600,000 units, intramuscularly. On February 20, the patient was seen at the doctor's office, and further improvement was noted. The temperature on that occasion was 99.6° F. Migrating muscle pains were evident. Joint pains were noted but no swelling was apparent, and an examination of the chest proved negative. Procaine penicillin, 600,000 units, intramuscularly, was given on that visit.

Continued moderate improvement was noted on February 21 and 22. The patient did light chores on the twenty-first and attempted more work on the twenty-second. However, he felt extremely tired and went to bed with a slight headache. On February 23, he awakened with a severe headache. It became progressively worse, and aspirin and one-half grain of codeine every three hours failed to relieve it. On February 24, his temperature was normal; but the headache was more severe and he vomited.

The patient was admitted to a nearby hospital for diagnosis and treatment, and a presumptive diagnosis of leptospiral meningitis was made. The past medical and social history obtained on his admission were essentially non-contributory. On physical examination, the following was determined: blood pressure 120/70 mm. Hg; temperature 99.6° F.; pulse rate 70/min.; respirations 20/min. Further examination of the patient revealed a well-developed, well-nourished, white male who appeared acutely ill. The remainder of a detailed physical examination was essentially negative.

During subsequent days in the hospital, laboratory studies showed the following: February 24, hemoglobin 96 per cent or 14.4 Gm/100 ml.; white blood cell count 6,500/cu. mm.; red blood cell count 4,720,000/cu. mm.; hematocrit 44 per cent; sedimentation rate 27/mm./hr.; urine negative; and brucellosis slide test negative. On February 25, a spinal tap was done, and 10 cc. of clear fluid was obtained. The initial blood pressure was 210 mm. Hg, and the closing pressure was 116 mm. Hg, with a free rise and fall. Examination of the fluid revealed a mild pleocytosis. A culture of the spinal fluid was negative. The spinal fluid contained 20 WBC/cu. mm.; polymorphonuclear leukocytes 2 per cent; lymphocytes 98 per cent. The glucose and globulin contents were within normal limits. A chest x-ray was negative.

Nausea and vomiting were present on February 25, but with symptomatic treatment the patient gradually gained strength during his hospital stay, and his headache diminished in intensity. He became afebrile on February 26, and remained so until discharge on March 1.

The patient's course following discharge from the hospital was one of very slow recovery, with headaches precipitated by even mild exertion. Though he maintained an intermittent low-grade fever until April 8, 1961, he gradually began some of his farm chores on April 1, and by April 29, 1961, he was working at full capacity. The patient was examined periodically, during the year following recovery, and showed no evidence of post-acute ophthalmic sequelae. Beeson *et al.*[1] state that following acute systemic leptospiral infection, iridocyclitis may occur, the span of time from initial infection to ocular inflammation varying from three weeks to one year, but most commonly occurring between four and eight months afterward.

EPIDEMIOLOGY

Exposure opportunities for the patient had been limited to the animals on the farm. The pertinent herd history of illness is as follows: Hematuria had been noted in one of a herd of 70 Hereford steers on January 11, 1961. A blood specimen obtained on January 15, 1961, had been negative for Leptospira pomona agglutinins, but the steer had died on January 16, 1961, and at a postmortem examination on the following day the veterinarian had made a presumptive diagnosis of leptospirosis. The other animals on the farm included one Angus bull, 17 dairy cows, and 18 sows. The steers and sows shared the same feedlot. The remaining cattle and swine had been given leptospirosis vaccine on January 19, 1961. Subsequently, five of 18 sows had aborted approximately one week prior to the anticipated parturition dates, and the remainder had normal litters. The porcine abortions had occurred between January 27 and February 10, 1961, with one-half of the premature litters born dead and the other half born alive, but weak. Leptospiral infection had been considered responsible for the abortions and debilitated piglets.

Prior to his illness, the patient had assisted the veterinarian in treating the sick steer, assisted barehanded at the steer portmortem, and helped with the vaccination procedures in addition to his routine cattle duties. A history of routine care and feeding contacts with the swine was obtained. In addition, the patient admitted having had contact

with normal pigs, aborted dead pigs, aborted live pigs, and swine urine and vaginal dejecta. As is commonly the case, the patient had also worked extensively with the aborted live pigs in an effort to assure their survival.

The correlation of exposure potential and incubation period incriminates swine contact (sows and litters) some time during the first week or 10 days of February, 1961.

DISCUSSION

Mention of human L. pomona infection with meningitis has been made frequently in reports.[11, 12, 19, 20] There are a number of conflicting reports in regard to the percentage of persons showing meningitis with leptospirosis.[9, 13, 17] This disagreement is due in part to the criterion used. For instance, Edwards and Domm define meningitis as "any meningeal reaction manifested by pleocytosis of more than five white blood cells/cu. mm." They further believe that if lumbar punctures were performed during the second week of illness, meningitis would be evident in 80 to 90 per cent of the cases.[13] Gsell believes that leptospiral meningitis is a result of an antigen-antibody reaction, rather than a result of direct action of the leptospires on the meninges.[21] If this is true, meningeal signs would occur only after hypersensitivity had developed, and would further explain the near absence of pleocytosis in the early stages of leptospiral infection.[13]

This patient showed an initial high rise in temperature, a subsidence four days post-onset and a reappearance of fever, in low-grade form, on the eighth day of illness. This biphasic temperature pattern has been observed by others.[20, 22]

Although patients with an acute L. pomona infection can be severely ill, the prognosis is excellent. Although the literature can't be supposed to have reported all of the cases, no human fatalities have been attributed to the pomona serotype in the continental United States.[23]

Typically, anicteric Leptospira pomona infection in man, with evident meningeal irritation, must be differentiated from such diseases as mumps, lymphocytic choriomeningitis and those produced by the coxsackie and ECHO virus groups. Anicteric leptospirosis without evident meningeal signs must be differentiated from such febrile conditions as Q fever, brucellosis, non-paralytic poliomyelitis and the various encephalitides. The differential diagnosis may be aided by some extent if one obtains adequate information concerning the patient's occupational and recreational exposure opportunities to contaminated urine or to the tissues of infected animals. Laboratory assistance is also a necessary adjunct to diagnosis.

The primary portals of entry for the organisms are abraded or sodden skin, and the oral, nasal and conjunctival mucous membranes.[9] The leptospires are generally thought incapable of penetrating the intact skin or of surviving the low pH of the stomach.

Cattle and swine infected with L. pomona have been established as sources of human infection.[19, 22, 24] Leptospira pomona is considered to be the causative serotype for 98 per cent of the enzootics in cattle and swine in the United States.[5] That these species constitute reservoirs for human infection in Iowa has been well documented.[18, 25] Following clinical or subclinical L. pomona infection, cattle may have leptospiruria for as long as three months, and swine may remain urinary shedders for up to six months.[26] Therefore, man may contract leptospirosis through contacts with acutely ill animals or through contacts with apparently healthy carriers that are continuing to shed the leptospires in their urine. Exposure to urine-contaminated soil or surface waters may also afford opportunity for infection.[18]

Complete agreement is lacking on the efficacy of antibiotic treatment for leptospirosis. According to Stockard,[27] the administration of penicillin, Aureomycin, or Terramycin in an adequate dosage may have some therapeutic value, if it is started shortly after the onset of symptoms. Alston and Broom[9] feel that antibiotic drugs have little value unless given at the first sign of illness. Various studies on antibiotic therapy were reviewed by Edwards and Domm,[13] and it is their considered opinion that no ideal therapeutic agent is presently available for the treatment of leptospirosis.

At the Institute of Agricultural Medicine during 1960-1961, a total of 25 cases of presumptive L. pomona infection in man were studied. The information gathered in conjunction with these cases was quite similar to that observed in this one instance, and will be summarized in a later publication.[25]

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REFERENCES

1. Beeson, P. B., Hankey, D. D., and Cooper, C. F., Jr.: Leptospiral iridocyclitis: evidence of human infection with Leptospira pomona in United States. J.A.M.A. **145**:229-230, (Jan. 27) 1951.
2. Larson, E.: Leptospirosis due to Leptospira pomona: report of first case in Iowa and review of literature. J. Iowa M. Soc. **43**:178-181, (May) 1953.
3. Galton, M. M.: Epidemiology of leptospirosis in United States. Pub. Health Rep., **74**:141-148, (Feb.) 1959.
4. Galton, M. M., Menges, R. W., and Steele, J. H.: Epidemiological patterns of Leptospirosis. Ann. N. Y. Acad. Sci., **70**:427-444, (June 3) 1958.
5. Morse, E. V.: New concepts of leptospirosis in animals. J. Am. Vet. Med. Asso., **136**:241-246, (Mar. 15) 1960.
6. Galton, M. M.: Current knowledge of wild animal hosts of leptospires in United States. Southeastern Veterinarian **10**:67-72, (Spring Issue) 1959.
7. Roth, E. E., Adams, W. V., and Linder, D.: Isolation of Leptospira canicola from skunks in Louisiana. Pub. Health Rep., **76**:335-340, (Apr.) 1961.
8. Clark, L. G., Kresse, J. I., Carbrey, E. A., Marshak, R. R., and Hollister, C. J.: Leptospirosis in cattle and wildlife on Pennsylvania Farm. J. Am. Vet. Med. Asso., **139**:889-891, (Oct. 15) 1961.
9. Alston, J. M., and Broom, J. C.: Leptospirosis in Man and Animals. Edinburgh, E. and S. Livingstone, Ltd., 1958.
10. Edwards, G. A.: Clinical characteristics of leptospirosis: observations based on study of twelve sporadic cases. Am. J. Med., **27**:4-17, (July) 1959.
11. Saslaw, S., and Swiss, E. D.: Leptospiral meningitis. A.M.A. Arch. Int. Med., **103**:876-885, (June) 1959

12. Klatskin, G.: Leptospirosis. Yale J. Biol. & Med., **27**:-243-266, (Feb.) 1955.
13. Edwards, G. A., and Domm, B. M.: Human leptospirosis. Medicine, **39**:117-156, (Feb.) 1960.
14. Brown, C. W., Carbrey, E. A., and Richards, W. D.: A Survey of the Incidence of Leptospirosis in Iowa. Project B3, Animal Disease Eradication Diagnostic Laboratory, Agricultural Research Service, U. S. Dept. of Agriculture, Ames, Iowa, 1957.
15. Morter, R. L.: Incidence of leptospirosis in Iowa swine. Ia. Vet., **31**:28-30, (Sept.-Oct.) 1960.
16. Monthly reports. Iowa Veterinary Diagnostic Laboratory, Ames, Iowa.
17. Stockard, J. L., and Woodward, T. E.: Leptospirosis: infections in man. Ann. N. Y. Acad. Sci., **70**:414-420, (June 3) 1958.
18. Braun, J. L.: Epidemiology of leptospirosis in Iowa: study of sporadic and epidemic cases. J. Am. Vet. Med. Asso., **138**:532-536, (May 15) 1961.
19. Schaeffer, M.: Leptospiral meningitis; investigation of water-borne epidemic due to L. pomona. J. Clin. Invest., **30**:670-671, (June) 1951.
20. Johnson, D. W.: Australian leptospiroses. Med. J. Aus., **2**:724-731, (Nov. 11) 1950.
21. Gsell, O.: Leptospirosen. Bern, Switzerland, Hans Huber, 1952.
22. Schnurrenberger, P. R., Tjalma, R. A., Stegmiller, H. E., and Wentworth, F. H.: Bovine leptospirosis—hazard to man. J. Am. Vet. Med. Asso., **139**:884-888, (Oct. 15) 1961.
23. Galton, M. M.: Personal communication, 1962.
24. Miller, N. G.: Serologic investigation of leptospiral infections in dairy farmers and cattle ranchers. Am. J. Hyg., **74**:203-208, (Sept.) 1961.
25. McCulloch, W. F., and Braun, J. L.: Unpublished data, 1962.
26. Reinhard, K. R.: Leptospirosis. Michigan State University Centennial Symposium Report (Reproduction and Infertility), pp. 12-19, 1955.
27. Top, F. H.: Communicable and Infectious Diseases. St. Louis, The C. V. Mosby Co., 1960, p. 700.

Iowa Methodist Hospital

September 13, 1962

Clinicopathological Conference

A 21-MONTH-OLD WHITE MALE infant was admitted to Blank Memorial Hospital on May 6, 1962, with gross hematuria of one day's duration.

The past medical history was essentially negative and non-contributory, and the pregnancy, birth, and development had apparently been normal. The birth weight had been 9 lbs. 3 oz.

The infant had apparently been perfectly well until the day prior to admission, when fatigue became evident. His temperature rose to 102°F., and an associated nausea and vomiting had developed on the evening prior to admission. Petechial hemorrhages on the chest and lower abdomen had been noted on the day of admission. Slight looseness of stools had been noted during the preceding week.

Physical examination showed a well developed male infant with normal weight and height for his age. There were a slight cutaneous icterus and a definite scleral icterus. The eyes appeared slightly puffy. The throat showed minimal injection and no exudate. The chest was clear. The abdomen was flat. The splenic tip was palpable. A soft, non-tender liver edge was palpable at the right costal margin. The skin was warm and moist, and exhibited diffusely scattered petechiae.

An admission hemogram showed a hemoglobin of 9.5 Gm. per cent, a hematocrit of 29 per cent, and a leukocyte count of 10,150 with 14 per cent neutrophils, 80 per cent lymphocytes, 4 per cent monocytes, and 2 per cent eosinophils. Serum proteins were 5.7 Gm. total, with 3.2 over 2.5 A/G ratio. A serum glutamic pyruvic transaminase was 80 units. The blood urea nitrogen was 86 mg. per cent. The sedimentation rate was 17 mm/hr. A reticulocyte count was 1.7 per cent. The platelet count was 28,000. A peripheral blood smear was evaluated as showing markedly decreased platelets, normochromic erythrocytes, slight poikilocytosis, and marked anisocytosis, and erythrocytic morphological aberrations which were non-specific. A sickle cell prep was negative. Blood cultures were sterile. Urinary porphyrins were negative. A screening test for heavy metals was negative.

A bone marrow examination was performed, and a sparse aspirate was obtained. Available marrow showed no abnormality.

An admission urinalysis showed a specific gravity of 1.035, a 4+ protein, negative reduction, and positive occult blood. There was much amorphous sediment, presumably hemosiderin. From five to ten leukocytes, occasional erythrocytes, and numerous yellow-brown granular casts were present in the centrifuged urine specimen. The serum hemoglobin was 185 mg. per cent. Febrile agglutinins were negative. An anti-streptolysin-0 titer was 10 Todd units. A throat culture yielded normal flora. A lupus erythematosus preparation was negative.

An initial oliguria, with 353 cc. output on the second hospital day, had progressed to near anuria, with less than 100 cc. output from the fourth hospital day through the eighth and final day of the patient's hospital course.

An admission chest film was without abnormality. An electrocardiogram was without diagnostic abnormality. The PR interval was .09 to .10 seconds.

A diagnosis of "hemolytic-uremic-thrombocytopenic syndrome" was considered.

The patient's hospital course was characterized

by normal temperature, progressive anemia in spite of blood transfusions, continued thrombocytopenia, and progressive uremia. Hyperkalemia did not ensue, and potassium levels reached a maximum of 5.5 mEq./L. on the fifth hospital day.

Peritoneal dialysis was accomplished on the seventh hospital day.

Death on the eighth hospital day was associated with gastric distention, ileus, irregular and labored respirations, tachycardia and cardiac irregularity.

DIFFERENTIAL DIAGNOSIS

Dr. Robert E. Carter, director of medical education, Broadlawns-Polk County Hospital. This case represents an extremely interesting medical problem, a disease syndrome which we don't see frequently either in children or in adults. The protocol can be considered in two sections: first, the history, initial physical findings and laboratory data; and second, the hospital course and the circumstances surrounding the patient's death. The first section permits us to make a tentative diagnosis; the second section allows us to see whether our clinical impression is correct.

Historically, this child had fever, vomiting and diarrhea, followed by hematuria, jaundice and purpura. This is an unusual combination of complaints and symptoms, one which cannot easily be fitted into any common disease entity that we are accustomed to see in a patient at any age, let alone in a 21-month-old infant. Adding the physical findings of jaundice, enlargement of the spleen, possible periorbital edema, and petechiae and ecchymoses, we think of renal disease, an infectious process, blood vessel (capillary) abnormalities, and disease of the platelets or the megakaryocytes. Acute glomerulonephritis and allergic purpura (Henoch-Schonlein) purpura should be high on our list of possibilities at this point. Idiopathic thrombocytopenic purpura should also be considered. A virus infection, infectious mononucleosis accompanied by hepatitis and thrombocytopenia, might also be considered. Cytomegalic inclusion-body disease would be a remote possibility among the infectious processes that could produce this clinical picture, and, of course, we must not forget the possibility of infection with leptospira organisms.

I have always had difficulty in evaluating slight degrees of periorbital edema in young children. It is tempting, reading further in this protocol, to conclude that the periorbital edema mentioned was the reflection of serious renal disease, but I am sure all of us have seen young children with a slight "puffiness" around the eyes which does not necessarily reflect renal disease. Similarly, it is difficult to assess the significance of the splenic enlargement in our consideration of this patient. Some children have high flaring rib cages, and it is possible to palpate the tip of the spleen under the ribs in a certain number. This is true if the gastrolienal ligaments and the splenic pedicle are long, and if the spleen is relatively mobile—a floating spleen like a floating kidney, if you will. I should suspect, however, that the palpability of this child's spleen on admission is significant to this case, in view of the petechiae and the suggestion of jaundice.

Although acute glomerulonephritis certainly can occur at this age, it is not very frequent. I should like to see a definite history of preceding infection with beta hemolytic Streptococci. It is unlikely that this occurred, however, since we read later in the protocol that the ASO titre was not elevated. Certain viral infections apparently can cause acute glomerulonephritis, but the number of such cases may be rare.[1]

An allergic purpura would explain many aspects of the clinical picture, but the distribution of the petechiae and ecchymoses does not sound typical for Henoch-Schonlein purpura. Also, though we could account for the petechiae, ecchymoses, and hematuria, we should have to invoke another disease process to explain the jaundice. Infectious mononucleosis is infrequent in children at this age, if indeed true infectious mononucleosis occurs at this age at all. Hepatitis, thrombocytopenia and skin rashes can occur with infectious mononucleosis, and for the time being we could explain the hematuria on the basis of urinary-tract bleeding due to thrombocytopenia. In a newborn or premature infant, cytomegalic inclusion-body disease would explain all our findings, but I doubt that the classic picture of this disease occurs in children at the age of this patient. Rarely, older infants expire with bizarre disease, and we find lesions in their tissues resembling salivary gland virus or cytomegalic inclusion bodies. The significance of these findings is obscure. The protocol mentions no likely source of leptospira infection. Although we could explain the jaundice and the hematuria on this basis, the petechiae and the ecchymoses would be uncommon, though possible.

Adding the initial laboratory findings, I think we can narrow the diagnostic possibilities. A hemoglobin of 9.5 Gm. represents a significant anemia in a child who previously has been well and taking a good diet. The white blood cell count and the differential count do not seem remarkable, and probably the serum proteins are within normal range for this age of infant. In general, children do not achieve adult levels for total serum protein until their third to fourth year. The transaminase level of 80 units is above normal limits for adults, but it is difficult to know what significance we can attach to this value in this patient. The BUN of 86 mg. per cent is certainly significant, and must reflect either renal pathology or a prerenal cause of azotemia. Apparently de-

hydration can be excluded as a factor in the azotemia this patient exhibited.

The peripheral blood smear is most interesting. The changes described as poikilocytosis, anisocytosis and erythrocytic morphological aberrations were striking, and were unusual enough to warrant a sickle cell preparation for this Caucasian child. I have reviewed the smear taken two days after admssion to the hospital, and know that Dr. Stephens will project photomicrographs of these red cell abnormalities later. There are cells on the smear which do resemble sickle cells, and there are a large number of so-called "burr" cells. Certain of the red cells appear to be fragments of once-normal cells. These changes are virtually identical with pictures published by Allison in 1957,[2] in his discussion of the disease syndrome of a severe hemolytic anemia associated with fragmentation of the red blood cells.

Proceeding further we see that lead intoxication was excluded by the failure to demonstrate increased corproporphyrins in the urine, as well, of course, as by the negative screening test for heavy metals. Physicians seeing adult patients may wonder at the pediatrician's concern about lead intoxication, but it must be thought of in any unusual anemia in a child.

The platelet count was 28,000, and on the basis of this finding I think we can remove "allergic" purpura with associated glomerulitis from our diagnostic possibilities. The erythrocytic and granulocytic cells in the marrow were normal morphologically, but the megakaryocytes were abnormal. The total number was not increased, but there was decreased platelet formation from the cytoplasm. Also, one can find large fragments of megakaryocyte cytoplasm separate from the megakaryocytes themselves. The granule content of these fragments was abnormally low. I do not know the significance of these large fragments, but suspect that they may have been related to a process involving the action of antiplatelet antibodies on the megakaryocyte cytoplasm. Atypical or giant platelets can also be seen in the peripheral smear.

The urine was highly abnormal, and I think it represented a fairly specific type of pathology. The high specific gravity, the proteinuria and hematuria indicate glomerular or upper nephron disease rather than purely a tubular problem. The high specific gravity (together with the elevated BUN) indicates that the total glomerular filtration was decreased, but that tubular resorptive mechanisms at that point were still intact. The acid reaction of the urine further confirmed adequate initial tubular function. If the initial renal pathology in this child's case had been tubular (lower nephron nephrosis), we should have expected scanty urine, to be sure, but urine that was isotonic in concentration and neutral in reaction. The interesting additional urinary finding was the presence of casts containing a yellow-brown material. It is doubtful that this was hemosiderin (iron oxide), which would come from deposits in the tubular epithelium. Chronic hemolytic anemias will show hemosiderin in the urinary sediment (a most useful finding in paroxysmal nocturnal hemoglobinuria), but this patient had not been hemolyzing long enough for this to occur. The material was probably hematin, hematin chloride or, in view of the heavy proteinuria, methemalbumin. The high serum free hemoglobin level, 185 mg. per cent, was three to four times the renal threshold for hemoglobin and 50 times the upper limit of normal for free hemoglobin levels in the plasma. This level of serum hemoglobin can mean only one thing—very rapid intravascular hemolysis which exceeded the ability of the reticuloendothelial cells to remove hemoglobin from the circulation in excess of the clearance potential of the kidneys.

At this point, I think we can exclude some of our initial tentative diagnoses, make a presumptive diagnosis, and see whether the subsequent hospital course of the patient bore out our assumptions. Acute glomerulonephritis following hemolytic streptococcal infection can be excluded on the basis of the failure to demonstrate these organisms in the throat culture, the normal ASO titre, and the clinical picture of rapid hemolysis and platelet depression. I think we can also exclude the rare types of infection mentioned earlier —the unusual viral or bacterial infections. Idiopathic thrombocytopenic purpura must be kept in mind, but only as one facet of a more extensive autoimmune process. A vasculitis must be kept in mind, for it is possible that this patient had capillary and arteriolar damage due to an autoimmune antibody against blood vessels, as well as a depression of platelets through the action of a separate antibody.

One diagnosis which would incorporate all the changes this child showed is the "hemolytic-thrombocytopenic-uremic" syndrome. We shall assume that this syndrome is a form of autoimmune disease where a severe acquired autoimmune hemolytic anemia is accompanied by platelet depression (probably resulting from the destruction of platelets by an antibody) and marked vascular changes in many organs including the kidney. These vascular changes may be similar to those seen in Moschcowitz's syndrome, thrombotic thrombocytopenic purpura. Marked perivascular infiltration with inflammatory cells, abnormalities in the endothelium, and the formation of platelet thrombi or an intravascular deposition of an eosinophilic material considered to be fibrin can occur.

In its complete form, destruction of red cells and platelets, and damage to small blood vessels,

produce a rapidly fatal disease. Variations in the degree of involvement of the various systems can occur, however, and in the small number of cases reported to date in the literature, vascular changes have been limited to the kidney. When the kidney is involved, the histologic picture can vary from an extensive cortical necrosis to only the deposition of hyaline material in segments of the glomerular tufts. I feel that this child, in addition to his marked hemolytic anemia, had extensive vascular changes resembling thrombotic thrombocytopenic purpura. These probably occurred not only in the kidneys but also in the myocardium, in the muscle, and most importantly in the brain. I would suspect that the renal pathologic changes were those of extensive glomerular destruction due to vascular changes, with the picture of cortical necrosis.

We can explain the subsequent course of this case with these assumptions. The complete anuria suggests glomerular destruction (at the least a blocking of glomerular circulation or a blocking of the tubules), rather than a picture of simple destruction of the tubular epithelium. Active hemolysis continued unabated despite the use of steroid hormones. Wisely, peritoneal dialysis was carried out, as renal failure persisted and the patient's condition became more critical. The normal levels of potassium are interesting in view of the continuing rapid hemolysis. I suspect that a good part of the excess potassium found its way into the intestinal lumen and was lost with the diarrheal stools. In the terminal period of the child's illness, with ileus and distention of the intestinal tract, a large amount of potassium could have been sequestered in the intestinal contents.

It would be interesting to know whether the child received anticoagulants. These have been suggested in Moschcowitz's syndrome,[3] and we have used anticoagulant therapy in one older child with this condition. No apparent alteration in the clinical course resulted, but I think it should be given an extensive evaluation, since its use is logical in view of the fibrin deposits in the smaller blood vessels.

I feel that the patient's terminal episode was related to extensive vascular change, not only in the kidneys but also in the heart, gastrointestinal tract and brain. The respiratory irregularities and the cardiac irregularities can be explained by damage to the central nervous system and to the myocardium. There may well have been multiple small hemorrhages in the myocardium. Ileus can result from the vascular changes and possible multiple petechial hemorrhages in the intestine itself.

In the remaining few moments, I should like to discuss the entity I think we are dealing with in this case, and to point out its connection with similar conditions seen in adults. The first report of a similar case was made by Hensley[4] in 1952. Additional cases were documented by Gasser[5] and others. At the present time some 16 cases have been reported in the world's literature. Variation in the histologic picture in the kidneys and other organs is stressed in these reports. The association of a hemolytic anemia with thrombocytopenia has been known in adults for many years, and the first description of a case involving a hemolytic anemia and marked vascular changes with thrombocytopenia was Moschcowitz's patient, an adolescent girl whom he treated in 1925 at Beth Israel Hospital, in New York. A number of cases of Moschcowitz's syndrome have been reported since then, and it is attractive to think that the "hemolytic-thrombocytopenic-uremic syndrome" in young children is a variation of this extensive autoimmune process. Variability in the clinical and histologic picture must be expected. In some mild cases there can be protracted remissions, or in the case of the hemolytic-thrombocytopenic-uremic form in young children, there can be apparent cures. It is interesting that the Schwartzman reaction has histologic features similar to the syndrome we are discussing, and similar to Moschcowitz's syndrome with fibrin deposits in small blood vessels and renal cortical necrosis. Possibly the hemolytic-thrombocytopenic-uremic syndrome is triggered by the endotoxins of gram-negative bacteria which gain access to the circulation from the intestine, but such a speculation is far ahead of our proved scientific facts at the present time.

Future years will bring a better understanding of this disease complex. For the time being, we can only treat our patients as best we can with the drugs and technics at our disposal.

Dr. Ralph Stephens, associate pathologist, Iowa Methodist Hospital. Antemortem peripheral blood (Figure 1) exhibited the red blood cell abnormalities noted in the case presentation. We were further impressed by the extreme susceptibility

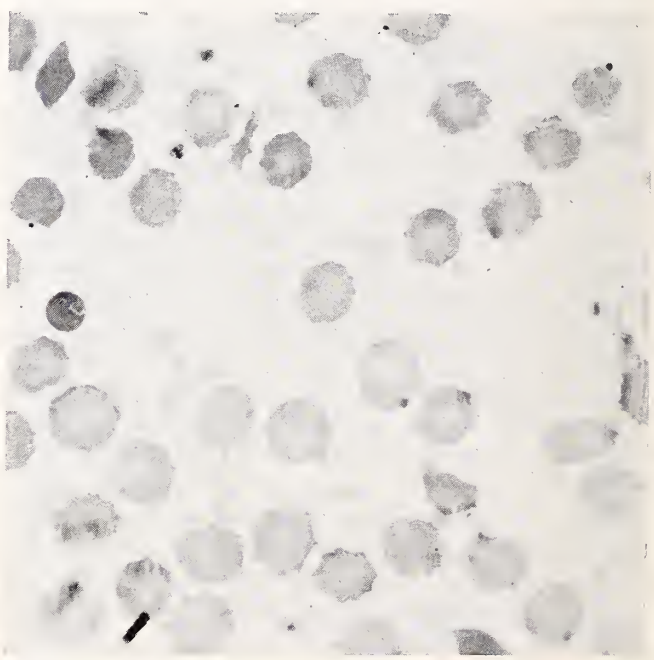


Figure 1. Antemortem peripheral blood exhibited red blood cell abnormalities.

to crenation exhibited by the patient's erythrocytes. Numerous attempts were made to prepare well preserved slides, and to avoid the artifact-producing technical errors which Dr. Carter has mentioned. In spite of our efforts, lunate and "burr" crenated forms persisted over wide areas of our preparation.

No abnormal leukocytes were detected. Platelets were reduced.

The gross autopsy findings were limited to a generalized anasarca. Subcutaneous and subserosal tissues were wet and boggy. There were congestion and some edema of the lung parenchyma. The kidneys seemed slightly swollen, and exhibited slight, patchy hyperemia. The urinary tract was without abnormalities.

Histopathologic sections revealed extreme and severe acute changes involving both glomeruli and tubules throughout both kidneys.

The proximal tubular epithelial cells were swollen, and variously showed cytoplasmic granularity and cytoplasmic vacuolization.

The distal and collecting tubules were alternately dilated and collapsed. The tubular epithelium was partially sloughed. Epithelial cells were reactive, as indicated by pleomorphic and variably hyperchromatic nuclei. Occasional renal tubular cell mitoses suggest efforts at regeneration and repair.

Numerous protein casts filled the lumina of distal tubules (Figure 2). Casts were increasingly frequent within collecting tubules. These casts were granular to homogeneous with conventional hematoxylin and eosin staining, and frequently were Prussian-blue positive. Special staining indicated a varied composition, including unspecialized protein, mucopolysaccharide, and fibrin.

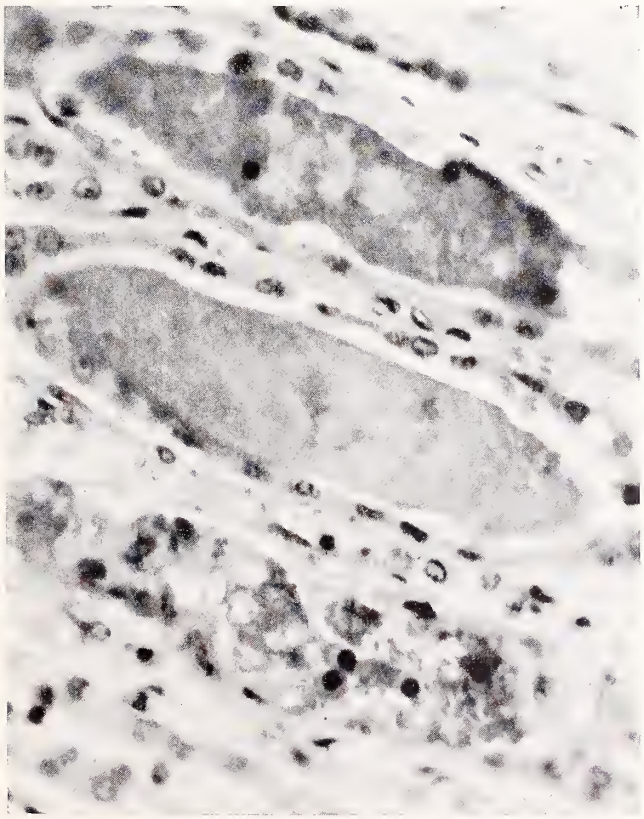


Figure 2. Numerous protein casts filled the lumina of distal tubules.

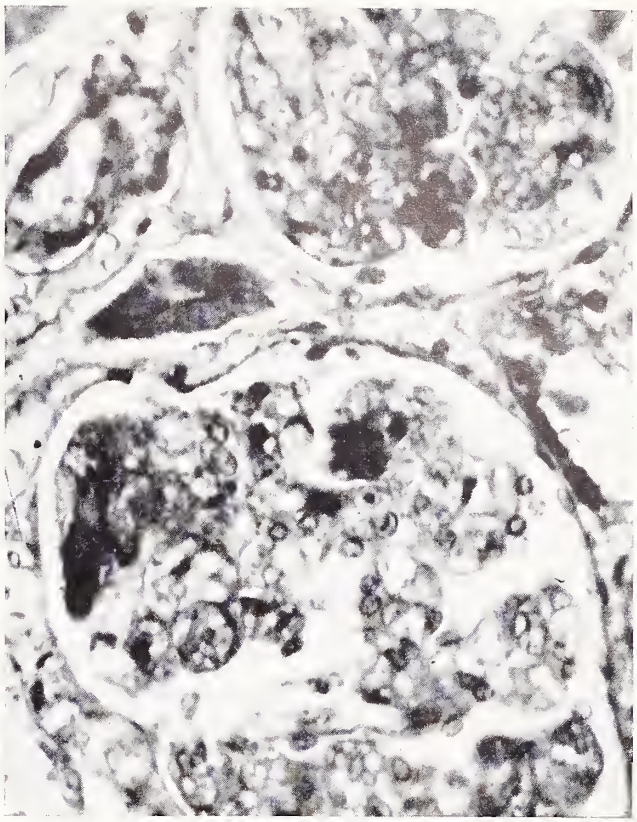


Figure 3. Glomeruli exhibited an asymmetrical, variously peripheral and central platelet and/or fibrin thrombosis of the tuft capillary loops.

Glomeruli (Figure 3) exhibited an asymmetrical, variously peripheral and central platelet and/or fibrin thrombosis of the tuft capillary loops. Generalized glomerular hemorrhage was not noted. Glomerular exudative and proliferative reaction was minimal, and present only in association with, and probably secondary to, capillary thrombi.

Microthrombi or angiitic reactions were not noted in other viscera, including the brain, in spite of a specific and diligent search.

The bone marrow was cellular. Megakaryocytes were present in reasonable numbers, although perhaps less overly abundant than would be expected with idiopathic thrombocytopenic purpura or thrombotic thrombocytopenic purpura.

CLINICAL DIAGNOSIS

Hemolytic-thrombocytopenic-uremic syndrome

DR. ROBERT E. CARTER'S DIAGNOSIS

Hemolytic-thrombocytopenic-uremic syndrome

PATHOLOGIC DIAGNOSES

Acute focal renal glomerular fibrin and platelet thrombi

Acute renal tubular nephrosis
Oliguria and uremia (clinical)
Thrombocytopenia (clinical)
Anemia (clinical)

REFERENCES

1. Bates, R. C., Jennings, R. B., and Earle, D. P.: Acute nephritis unrelated to group A hemolytic Streptococcus infection. Am. J. Med., **23**:510-528, (Oct.) 1957.

2. Allison, A. C.: Acute hemolytic anemia with distortion and fragmentation of erythrocytes in children. Brit. J. Haematol., **3**:1-18, (Jan.) 1957.

3. Swaiman, K., Schaffhausen, M., and Krivit, W.: Thrombotic thrombocytopenic purpura. J. Pediat., **60**:823-829, (June) 1962.

4. Hensley, W. J.: Hemolytic anemia in acute glomerulonephritis. Australasian Ann. Med., **1**:180-185, (Nov.) 1952.

5. Gasser, C., Hitzig, W. H., *et al.*: Hämolytisch-urämische Syndrome: bilaterale Nierenrindennerkrosen bei akuten erivorbenen hämolytischen Anämien. Schweiz. Med. Wchnschr., **85**:905-909, (Sept. 20) 1955.

State University of Iowa
College of Medicine

Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 74-YEAR-OLD Mexican onion-field worker gave a two-day history of vague upper-abdominal pain at the time of his first and only admission. His inability to speak or understand English very well made his history very difficult to obtain and unreliable. He described his pain as crampy, said it was located in the right subcostal area, and recalled that it had begun two hours after he had eaten some ice cream. After persisting for approximately 36 hours, it had become less severe on the evening preceding his admission to the University Hospitals. The pain was accompanied by tenderness in the right subcostal area. The patient denied having had any previous similar episodes, any intolerance to fatty, greasy or high-residue foods, or any chills, fever, jaundice or changes in urine or stool color. During the day preceding his admission he had spat-up blood on two different occasions. There was no history of a previous episode of that sort.

The patient was 5 ft. 4 in. tall, and weighed 144 lbs. He was cooperative in attempting to answer all the questions put by the examiner, but each participant in this exchange was handicapped by an unfamiliarity with the other's language. The patient did not appear to be seriously ill, either acutely or chronically. His blood pressure was 160/95 mm. Hg, and his pulse was 80/min. His darkly-pigmented skin had normal turgor. A careful inspection of the sclerae and the mucous membranes did not suggest jaundice. There was a diffuse tenderness in the right upper quadrant, with some splinting. A questionable Murphy's sign was noted when he inspired deeply. No masses, rebound or tenderness was noted elsewhere in the abdomen. The bowel sounds were normal. The hemoglobin was 13.1 Gm. per cent, and the white blood cell count was 14,000/cu. mm. A urinalysis revealed 2 + albumin, and a blood serology showed a VDRL titer of 1:128, a Kolmer titer of 1:256, and a positive reaction to the Reiter protein complement fixation test. A spinal fluid serology showed a VDRL titer of 1:256, and a Kolmer titer of 1:256.

An upper gastrointestinal roentgenographic study revealed a ragged loop of small bowel overlying the third lumbar vertebra, but it wasn't visible on every one of the films. The impression was that the upper gastrointestinal study was negative. A cholecystogram was carried out with a double dose of oral dye. No gallbladder function was displayed. A barium enema was negative on roentgenographic interpretation. The chest roentgenogram revealed no abnormality. An electrocardiogram displayed a sinus tachycardia with frequent premature atrial contractions. RST segment changes were noted, and they were thought to be due to the rapid heart rate. The working diagnosis was subsiding cholecystitis.

The patient was housed in the barracks, and he was seen as an outpatient for four days, while the various studies were being performed. A dermatology consultant advised no treatment for lues because the patient's case was judged to be one of non-infectious, asymptomatic, "burned out" tertiary syphilis, with no danger of progression to paresis or tabes. Signs and symptoms of both those latter conditions were absent. Further interrogation of the patient revealed that he had been married once, that his wife and a son were both well, and that he had had frequent extramarital relationships, the most recent one having been one month prior to his admission to the University Hospitals.

During a two-week interval following his entrance to the hospital, the patient's upper-quadrant signs disappeared. On the day following his admission, a Meyer's test of the feces was 4 +, and two later tests showed 1 + and a trace, respectively.

A sigmoidoscopic examination was done on the next day. The scope was passed to 25 cm., and normal mucous membrane was noted, with no evidence of bleeding or other abnormalities.

Succinylsulfathiazole was given for two days, and neomycin for one day prior to surgery. An operation was performed 18 days after he was first seen, and some adhesions were found between the gallbladder and the adjacent omentum and the duodenum. The gallbladder wall was obviously inflamed and quite thickened. The common duct which was easily exposed, appeared to be normal. Dye was injected by means of a catheter introduced through a ureter, through the cystic duct and into the common bile duct, and a cholangiogram was obtained. It was normal. The gallbladder was removed without difficulty and the gallbladder bed was reperitonealized. The blood loss was negligible, and the blood pressure was maintained at normal levels throughout. The operating time was 1½ hrs. The patient tolerated the operation well, and his condition was considered excellent at its termination.

During the afternoon and evening following his operation, the patient vomited bile-stained gastric contents. At 11 p.m. a nasogastric tube was passed, and after 200 cc. of bile-containing gastric contents had been aspirated, the patient was relieved of his nausea and vomiting. He was ambulated on the evening following his operation, and his first postoperative day was unremarkable. During his second postoperative day, the Penrose drain that had been placed in the right subhepatic space was removed. There was some drainage, but it was judged to be unimportant. The bowel sounds at that time were normal. A clear liquid diet was started. His temperature on that day ranged between 99.8 and 98.6°F.

The patient began to have diarrhea during the evening of his third postoperative day, and his temperature at that time was 101.8°F., though he had been afebrile in the morning. The bowel sounds were hyperactive. The patient complained of burning and smarting on urination, and of increased frequency. By the morning of the fourth postoperative day, he was acutely ill. Stool cultures were obtained, and a pure growth of hemolytic Staphylococcus aureus was obtained from them. The hemoglobin was 12.2 Gm. per cent, and the white blood cell count was 16,000/cu. mm., with a differential of 46 per cent band forms, 49 per cent segmenters, 2 per cent lymphocytes and 3 per cent monocytes. A blood count done on his second postoperative day had shown 29,600 white blood cells per cubic millimeter, with a differential of 1 band form, 89 segmenters, 1 eosinophil, 8 lymphocytes and 1 monocyte.

Tetracycline, 100 mg. q. 6 hrs., intramuscularly, had been started on the afternoon of the operation. On the third postoperative day, this was changed to tetracycline, 250 mg. q. 6 hrs., by mouth. On the fourth postoperative day, the tetracycline was stopped. At that time paregoric and buttermilk were given. During the afternoon of the fourth postoperative day, the patient vomited greenish material. He continued to have liquid, greenish stools. The physicians in charge of the case felt that the volume of the stools was considerably in excess of the 350 cc. recorded on the patient's chart for the fourth postoperative day. A roentgenogram of the chest was negative, and films of the abdomen in the supine and left lateral decubitus positions revealed findings compatible with an adynamic ileus. During the course of the night the patient's condition continued to deteriorate. He became lethargic and, later, delirious. At 4:00 a.m. his blood pressure abruptly fell to 60/30 mm. Hg. Signs of peripheral vascular collapse were present. A blood culture was obtained, but there was no growth from it. The blood urea nitrogen was 115 mg. per cent, and the CO_2 was 24, the sodium 126 and the potassium 4.0 mEq./L. There had been a urinary output of 105 cc. during the preceding 24 hr. period. The patient's temperature was 102.6°F. One unit of whole blood was given, and a metarminol bitartrate (Aramine) drip was started. Chloromycetin and penicillin therapies were begun.

During the fifth postoperative day, the patient was given levarterenol bitartrate (Levophed), with phentolamine methanesulfonate (Regitine), and intravenous fluids consisting of normal saline, sodium lactate, 5 per cent dextrose in normal saline, low molecular weight dextran and whole blood. At 9:00 a.m., the CO_2 was 15, the chloride 84, the potassium 4.1 and the sodium 132 mEq./L. The patient's weight was 138 lbs., as contrasted with 135 lbs. three days before. He remained oliguric throughout the day. It was estimated that 1,200 cc. of greenish liquid stool was lost.

By evening, the patient's weight had increased to 142 lbs. His blood pressure was being maintained with Levophed (2 ampules) and Regitine (one ampule) in 500 cc. of saline. Eighteen drops per minute were required to keep his systolic pressure at 110 mm. Hg. Thirty cubic centimeters of urine had been passed during the previous 24 hrs.

From the onset of the diarrhea on the evening of the third postoperative day, it had been difficult to assess the abdominal findings. At various times, the patient appeared to have hyperactive bowel sounds, and at times he appeared to have marked and diffuse abdominal tenderness. By the evening of the fifth postoperative day, when he obviously was critically ill, his abdomen seemed less tender and soft. No mass was palpable, and there was no muscle spasm. At that time, the possibility of operative intervention was considered and rejected.

On the morning of the sixth postoperative day, the patient appeared to be terminal. During the

previous 24 hrs., he had produced 100 cc. of urine with a specific gravity of 1.025. The blood creatinine was 6.4 mg. per cent, and the CO_2 was 12.8, the sodium 132, the potassium 5.0 and the chloride 84 mEq./L. The diarrhea had been absent for 12 hrs., but it began again. Another stool culture was done, and it produced a pure growth of hemolytic Staphylococcus aureus. A stool enema obtained from another patient on the ward was given. Fluid support and antibiotics were continued. ACTH, 50 mg., intramuscularly, was given and was to be repeated at eight-hour intervals.

The patient expired at 12:30 p.m., on his sixth postoperative and twenty-fourth hospital day, three hours after his first dose of ACTH. An attempt to resuscitate him by mouth-to-mouth breathing had been unsuccessful.

SUMMARY OF CLINICAL DISCUSSION

Dr. James A. Buckwalter, Surgery: From the protocol for the case to be presented this afternoon, you are aware of the diagnosis. It is an almost classic example of an acute and catastrophic complication occurring following an operation. Mr. Luckstead will discuss for the students.

Mr. Eugene Luckstead, junior ward clerk: We are considering a 74-year-old laborer who apparently had been in good health most of his life. Apparently he had had no somatic complaints until he was brought to this hospital with a complaint of diffuse upper-abdominal pain that had started two hours after his ingestion of some ice cream. Except for two rather vague episodes of "spitting up" blood, he mentioned no incidents of any possible significance in reciting his past history. We realize that the communication barrier may have been a problem during the history-taking. I don't know whether hemoptysis *per se* was verified.

The clinical diagnosis reported in the protocol was subsiding cholecystitis, but I shall briefly mention some of the other clinical possibilities which obviously had to be ruled out. These included duodenal ulcer, which was ruled out on the basis of a normal upper gastrointestinal series and no past history of melena, hematemesis or indigestion. One must consider malignancy in patients of this man's age group, but the man's apparent good health prior to the illness for which he was hospitalized here, the absence of weight loss and the negative x-ray findings contraindicated any such condition. As for the incidental serologic finding in this patient, one must consider something that is not common—a gastric crisis. This tends to produce a more severe type of abdominal pain. I thought I would mention that we feel these findings were unrelated.

Other considerations which are not pertinent here, but should be mentioned, are intestinal obstruction, coronary disease and some type of pulmonary disease, but cholecystography seemed to point at the gallbladder as the source of the difficulty. One item troubled us—the occult blood in the stools. We can disregard the major causes of such occult blood, realizing that no history was given of any tarry stools, and that one must pass at least 60 cc. of blood to produce a tarry stool. The commonest causes of tarry stools and occult blood are peptic ulcer, gastritis, esophageal varices or some type of intestinal malignancy. These are apparently disproved by the clinical studies done on this man. Therefore we should like to postulate, without being too adamant about it, that this man may have had occult blood as a result of minor bleeding from the gallbladder through the bile duct and into the intestine. Another possibility might be an ulceration in the intestine, since the protocol has said that one of the x-rays may have contained evidence of it. However, these are unlikely.

This patient's major problem occurred in the postoperative period. A significant factor was the preoperative administration of sulfasuxidine for two days and of neomycin for one day. On the day of the operation, tetracycline was started, first intramuscularly and then orally. At operation, a cholecystectomy was performed, apparently without incident, and the common duct system was judged to be normal. Adhesions were mentioned, however, and with the possibility of duodenal adhesions, one might think of a gallstone ileus in the past, but no suggestive history has been given us, so we shall disregard this possibility.

On the patient's third postoperative day, after having had no complications during the preceding days, he suddenly spiked a fever of 101.8°F., with dysuria and urinary frequency. No mention was made of any kidney tenderness, but with these findings one must consider the possibility of renal infection at this stage. Superimposed on this are the findings of hyperactive bowel sounds, and also a copious diarrhea which began that evening. A gastrointestinal involvement seemed indicated. Both urinary infection and intestinal infection can occur with the onset of fever at such a time in the postoperative period.

Pulmonary problems usually cause an onset of fever in the first day or two postoperatively. Another contraindication was the absence, according to the protocol, of any difficulty or changes in respiration.

Renal disease can be secondary to hypotension and dehydration. If one considers primary renal disease, he can rule out hypotension and dehydration as the cause by testing the response of the specific gravity level of the urine. It would tend to remain at a fixed low level following intravenous fluid and blood replacement. When this patient was given replacement therapy, his specific gravity did not remain fixed, but went up to 1.025. This would tend to indicate hypovolemia and dehydration as the causes of his kidney problem.

Something that is not in the protocol but should be presented in a discussion of the differential diagnosis is that a serum amylase was done on the patient's third postoperative day and was found to be 100 units. This is within normal range, and contraindicates postoperative pancreatitis.

Stool cultures on the fourth postoperative day showed a pure growth of hemolytic Staphylococcus aureus. Also on the fourth day, an emesis of greenish material occurred, and the patient continued to pass profuse green diarrheal stools. On x-ray, an adynamic ileus was seen, and it is described in the protocol. We postulate that this may have been related to the electrolyte imbalance, with a hypokalemia as the most likely cause. However, this was transient, lasting just 12 hrs. and the diarrhea eventually resumed. Anuria was also present, and it increased in severity. Later, there was only a mild increase in the urinary output with the increased hydration and the use of vasopressors. The patient became lethargic, and later was delirious. There was an abrupt drop in his blood pressure, and peripheral vascular collapse was evident. A depression of sodium and chloride was noted at the time, and the possibility of metabolic acidosis was quite prominent. Three hours following the administration of ACTH in a last attempt to reverse the shock, the patient died. This makes one think of the possibility of adrenal failure.

Therefore, we feel that this man had the postoperative complication of pseudomembranous enterocolitis. Most authors feel that the enterotoxin is responsible for the peripheral vascular collapse, but that the intestinal fluid loss contributes materially in this process, too. A pure culture of hemolytic Staphylococcus aureus is of great diagnostic importance in such cases, along with clinical correlation. Hence, we suggest that the cause of death was irreversible shock, enhanced by adrenal failure and metabolic acidosis secondary to acute renal failure from hypovolemia.

Dr. Edward E. Mason, Surgery: This patient died of a disease that has been called pseudomembranous enterocolitis because of the appearance of the mucosal surface of the bowel at autopsy. This entity has been recognized since 1893, when Finney reported a patient who had died 15 days after a pyloric resection and from "ulcerating enteritis with a diphtheritic membrane."

We have had some previous experience with the disease in this hospital, including a case that was the subject of a clinical pathologic conference held on October 27, 1954. That patient was a 78-year-old male who had been treated with penicillin and streptomycin for a bowel obstruction and then transferred to this hospital, where a Richter's hernia was reduced. Within 12 hrs. following the operation, he began to have diarrhea. The magnitude of the diarrhea went unrecognized, and within 36 hours after the operation the patient was in a very dehydrated, oliguric state, with a pulse of 120/min. and a blood pressure that had slipped from a normal value of 150/80 to one of 70 mm. Hg systolic.

There was some reluctance about giving more intravenous saline to an elderly patient who already had had several liters of fluid and who was still in the immediate postoperative period. Five hundred milliliters of dextran was given rapidly to see what effect it would have on the blood pressure. The patient responded in a way which suggested that he had been hypovolemic, and it was decided that he needed more electrolyte solution. He received as much as 17 L. of intravenous fluid on one day, and a total of 126 L. of fluid over a period of 13 days, until he finally became so depleted of protein that he was either edematous or in shock, depending on the rate of infusion, and there was no safe area between the two states. His problem was like that of the experimental animal that had undergone plasmaphoresis. He maintained a good urinary output, however, and was keeping a good electrolyte balance. Paregoric, banthine and morphine were given him, and the external loss of fluid slowed, but the distention increased and there was a greater loss of fluid from gastric suction. Penicillin was stopped, and erythromycin was started. A specific cause was not found, and the patient died of his intractable diarrhea and the complications of hypoproteinemia and pneumonia.

That was seven years ago. What have we learned since? Obviously, some patients are still dying of this disease, as evidenced by the man whom we are discussing today. How common is this condition? I requested the charts for the past 12 months of all patients who had been coded for enteritis in our record room. I received about 35 charts. Most of them were for patients with vomiting and diarrhea of short duration—people who were in the hospital for only a day or two, and on whom we had done no stool cultures or other studies that would help to classify them. Ten patients had been more severely ill, and ill for a longer period of time, and in them some definitive diagnostic studies had been carried out. Staphylococci had been cultured from the stools of two patients who had been admitted with diarrhea, but though the organisms had been sensitive to all antibiotics, the main treatment had actually been the administration of sufficient volumes of intravenous fluid to restore hydration.

Five patients besides the man discussed here today had had staphylococcal enteritis that developed here in the hospital. Two of those were surgery patients; two were urology patients; and one patient was on the medical service. All of them had been well managed, once the diagnosis was recognized, though this often required several days after the onset of lethargy and the sudden initial rise in temperature. The Staphylococci cultured from the stools, in most of these patients, had been resistant to many antibiotics, but usually

sensitive to erythromycin and routinely sensitive to albamycin. Most of the patients had received around 4 L. of intravenous fluid per day during their diarrhea.

The two urology patients were cared for by the same intern, and he is to be congratulated for his early recognition of the condition, and the aggressive and effective treatment he gave it. One of the surgery patients developed his disease on the same ward and at the same time as the patient whom we are discussing today, and in fact the fatality may well have increased the alertness of the attending staff so that the other patient with the same problem was saved.

This is a disease that can vary a great deal in severity of onset, regardless of the final outcome. Some patients have lethargy, fever and a gradual deterioration of the circulation, without obvious diarrhea. Both in the patient whom we are discussing this afternoon and in the one discussed at the CPC seven years ago, there was enough confusion about the diagnosis so that x-rays were taken in an attempt to find some intraabdominal catastrophe that might account for the deterioration in the patient's condition.

In today's protocol, you notice that the patient was given sulfasuxidine for two days and neomycin for one day prior to his operation. These medications were given in spite of the fact that there was no plan to open the gastrointestinal tract at the time of surgery. There is some question as to whether intestinal antibiotics are indicated even when the intestine is to be operated upon. In the March 2, 1962, issue of SCIENCE,[1] an article by Bouillenne entitled "Man, the Destroying Biotype" calls attention to the way man upsets the balance of nature by converting virgin lands to inappropriate agriculture, with a resultant destruction of all life in an area. The same sort of thing happens in the gastrointestinal tract when we upset the normal flora and allow the overgrowth of new bacterial species which are resistant to most antibiotics and which, in the case of staphylococcal infestations, produce a lethal enterotoxin.

The difference between pseudomembranous enterocolitis and staphylococcal food poisoning is that in food poisoning we suffer only from one dose of the toxin without having a staphylococcal infection in the gut. Moreover, as soon as diarrhea starts, we get rid of the toxin. In pseudomembranous enterocolitis, however, there are inadequate normal flora, and the Staphylococci grow in the bowel and continue to liberate their exotoxins. This disease has been observed and studied in the chinchilla, where it was first recognized following the introduction of antibiotics to the animals' diet in an effort to improve their fur. About 5 per cent of the animals began to succumb to the disease. Experimentally, Koch's postulates have been fulfilled in chinchillas, cats, kittens and monkeys, according to Prohaska and others,[2] at the University of Chicago.

In 1914, Barber[3] cultured Staphylococcus albus from cow's milk that had caused an outbreak of gastroenteritis. He inoculated sterile milk with a culture and incubated it for 8½ hrs. at 36°C. He then drank 55 cc. of the milk and experienced gastroenteritis within two hours.

The subject of food poisoning is discussed by Dewberry[3] and by Dack,[4] and much of what is known about staphylococcal enterotoxin is reviewed in their books. Apparently the power to produce enterotoxin is not limited to any recognizable variety of Staphylococcus. Surgalla,[5] who believes that the toxin causing food poisoning is the same as that which is found in enteritis, reports that enterotoxin is produced on the simplest medium that will support growth of the bacteria, although more toxin is produced on somewhat more complicated media.

Today's patient had a "bowel prep" which included neomycin. Tisdale and Klatskin[6] have reported a series of patients treated with neomycin who developed staphylococcal enteritis, and Finegold and Gaylor[7] reported some patients who developed the disease with a type 54 Staphylococcus resistant to kanamycin, neomycin, panmycin and chloramphenicol. They again raise the question of the advisability of preoperative bowel preparation. The effective drugs, if any remain, vary from institution to institution, depending upon the local misuse of antibiotics.

The patient under discussion today developed fever and diarrhea on his third postoperative day. According to Pettet, Baggenstoss, Dearing and Judd,[8] that is the time when the average patient with this disease develops symptoms. They reviewed patients' records at the Mayo Clinic and observed that there had been just as high an incidence prior to the antibiotic era.

Cramping abdominal pain and distention are usually the first abdominal symptoms. In both CPC patients, the physicians found it very difficult to accept the diagnosis of pseudomembranous enterocolitis early in the course of the disease. Since early diagnosis is essential to adequate treatment, Turnbull[9] has emphasized that the early clinical recognition depends upon diminished abdominal sounds, and on distention, tachycardia, fever, oliguria, diarrhea and vomiting. Later, shock, toxic delirium, leukocytosis, a fall in serum protein, anemia and circulatory collapse may occur. Progression is rapid in some patients and more gradual in others, probably depending on the amount of enterotoxin being produced.

The protocol tells us that the patient appeared acutely ill on the fourth postoperative day. I asked for some more information on that point. The attending physician wrote in the chart, "The patient appears quite dehydrated, with poor skin turgor and collapsed peripheral veins." The blood pressure at that time was still normal. Likely subhepatic abscess was diagnosed as the cause of ileus and diarrhea. It is obvious from this that the clinician didn't really recognize the condition at

that time. He wrote that he would restart antibiotics in the morning if the patient's condition indicated it, and during this period about 5 L. of fluid were given. The definite diagnosis of pseudomembranous enterocolitis wasn't written on the patient's chart until he had died. On the last day, there was still talk about a possible intraabdominal abscess, and a needle was inserted in the right upper quadrant to see whether a collection of infected bile could be aspirated.

It needs to be emphasized that this disease can be very difficult to recognize. Obviously, the diagnosis of pseudomembranous enterocolitis was considered in this patient, as is evidenced by the fact that stool cultures were obtained, and that the patient was given buttermilk in an attempt to establish a more compatible bacterial flora. Cortisone was used, probably more in the hope that it would have an appropriate effect in treating the hypotension of endotoxic shock, than in the expectation that it would help counteract the effect of the staphylococcal enterotoxin on the bowel. Prohaska[2] has written of the specific and miraculous effect that ACTH achieves in these patients. He feels that it neutralizes the enterotoxin. There is no experimental support for his view, but undoubtedly it was the basis for the physicians' using that drug, albeit during the terminal period of the patient's life.

Why did this patient die? He didn't seem to pass the large volumes of stool that the CPC patient seven years ago did, but there is one more striking difference between the two patients. The man whose case we are discussing today became oliguric on his fourth postoperative day, and early after the onset of diarrhea. That was the period when the battle was lost! Later, enough fluid was given him, and his weight was normal at the end, but for a period that probably was too long, he was in shock—early in the course of the disease.

Thus, one encounters all of the problems of irreversible shock. This is not a diagnosis that one makes while a patient is still alive, for the physician never gives up. But in retrospect it appears that the patient had resistant shock. Normal circulation is a complicated affair. It involves more than a normal blood pressure. We have discussed this subject rather extensively in an article that appeared in the April, 1962, JOURNAL OF THE IOWA MEDICAL SOCIETY, but let me say just a word about the treatment sequence that might have been used on the patient at this stage.

When a patient has a fast pulse, poor skin turgor, a pale, sweaty and cold skin, poor capillary refill, oliguria and a low blood pressure, it is possible that he needs an increase in his extracellular fluid. This is especially true if there has been distention of the abdomen and diarrhea. It is not enough to reestablish blood pressure, although that is a part of a satisfactory response. Ordinarily, vasopressors should not be used, but they were used in this case, probably because the physicians felt that they had given enough fluid to rehydrate the patient, and they were beginning to think about possible gram-negative types of endotoxin shock as the possible etiology. They gave intravenous norepinephrine, and they added phentolamine in order to prevent slough of the skin, in case spasm of the vein should occur, with extravasation of the solution into the subcutaneous tissues.[11]

The blood pressure was supported, and perhaps at that stage it was already too late to do any better, but the urine flow was not reestablished. If a patient in shock responds to treatment with a good output of urine, the treatment is usually appropriate. In this instance, something more was needed. This is a situation in which either low-molecular-weight dextran or regular dextran, or mannitol, can be tried. Low-molecular-weight dextran not only would provide an increase in the plasma volume, and perhaps reduce sludging and intravascular thrombosis, but also would act as an osmotic diuretic and, if continued, would keep blood and fluid running through the kidneys so as to keep them from suffering further ischemic damage. Fluid is pulled into the lumen of the nephron, casts are washed out, and perhaps the tendency toward vasospasm is counteracted by the increase in the fluid volume in the vessels and in the nephron.

Dextran was given to the patient under discussion today, but much too late. After the acute damage has taken place, about all you can do is to restrict fluids and try to keep the patient alive until kidney recovery occurs. The only time when a continued use of vasopressors is acceptable treatment for shock is when a completely satisfactory response occurs to their administration, including an adequate urine flow. Whenever vasopressors are used, there should be a continued search for a more satisfactory explanation of the shock—preferably, one that can be specifically treated.

There was another important deficiency in the treatment of this patient. Not only did the attending physicians fail to recognize the severity of the patient's circulatory disturbance early enough, and to treat it effectively enough, but also they did not recognize the disease, establish appropriate treatment with specific antibiotics, and discontinue all of the antibiotics that the patient had been receiving. It may not be safe to wait for the culture report, in severe cases of pseudomembranous enterocolitis, if one has a pretty good idea, from his experience in the geographical area where he practices, as to the most probably effective drugs. There is the danger, of course, of giving some other antibiotic that is effective against normal colon bacteria, but ineffective against the Staphylococci, thus perpetuating or aggravating the pseudomembranous enterocolitis. The literature mentions a few patients with food poisoning whose disease was converted into a fatal pseudomembranous enterocolitis by the injudicious administration of an antibiotic. The experimental work with chinchillas has shown how this can occur. In this disease, it is much better to give no anti-

biotics at all than to administer ineffective ones. Fecal enemas from normal patients, and the administration of colon bacteria by mouth, have been shown to be effective in preventing and treating this condition.

According to Pettet *et al.*,[8] 50 per cent of these patients die within 12 hrs., and 70 per cent within 24 hrs. after the shock is first recorded, as a result of the large loss of extracellular electrolyte solution, in most instances. Sometimes it is lost into the abdomen, rather than actually lost from the body. There can be 4 or 5 L. of fluid in the gut and in the peritoneal cavity. Replacement should be with isotonic saline and sodium bicarbonate in a ratio of 2:1, and if urine is being formed, potassium, 30 mEq./L., should be added. In some instances it is tempting to postulate some more specific effect of the toxin in producing shock, and to treat the patient with cortisone and vasopressors, but this seems unnecessary in most patients with pseudomembranous enterocolitis if fluid and electrolyte replacement is adequate and if resistant shock is not allowed to develop.

One definite improvement in the recognition and appropriate management of these patients that has occurred during the last decade is in the culture of stools. It is much commoner now to isolate Staphylococci in cultures of stool than it used to be. Nowadays, special media are used that suppress the growth of colon organisms. The bacteriologist who is informed of a physician's suspicion of staphylococcic enteritis will use phenylethyl alcohol medium or other special culture media.

Steiner[12] has called attention to the high percentage of patients now seen with this disease who have received antibiotics prophylactically or otherwise. He recommends avoiding the promiscuous use of antibiotics, and the maintenance of a high index of suspicion of this disease in patients with fever, abdominal discomfort, diarrhea, nausea and vomiting, accelerated pulse and elevated temperature. He recommends isolation for these patients when the diagnosis has been made or highly suspected, early culture of the stool, and administration of specific antibiotics as soon as possible.

The mechanism of action of the enterotoxin has been commented upon by Hardaway and coworkers.[13] Many animals are apparently unsusceptible because they lack something in their blood which is necessary for the coagulase reaction. It is said that the staphylocoagulase reaction resembles normal thrombin formation from prothrombin under the influence of thrombokinase, except that calcium is not necessary. In susceptible animals, the injection of enterotoxin intravascularly will lead to the formation of rather typical intestinal lesions within a few hours. If the superior mesenteric artery is clamped for 15 minutes after the injection, the intestine is protected.

According to today's protocol, an x-ray of the abdomen showed an adynamic ileus. Feinberg[14] reviewed the x-ray findings in a series of 25 patients with pseudomembranous enterocolitis at Mt. Sinai and University Hospitals, in Minneapolis. In 17, the x-ray suggested incomplete or complete obstruction. The very fact that so many of these patients had been x-rayed illustrates the difficulties in making a certain diagnosis of this condition. It is important, therefore, that the roentgenologist should be aware of this disease and should do his part in directing attention to the possibility of it in the differential diagnosis of obstruction, dyskinesia and localized adynamic ileus.

In summary, it appears that this patient died from a combination of too much too early, and too little too late. He should not have had sulfasuxidine, neomycin and tetracycline to begin with, and when the disease started on the third postoperative day, all antibiotics that had been used should have been stopped, and with the stool cultures showing Staphylococcus, albamycin should have been started. The treatment of circulatory insufficiency should probably have been more vigorous and better timed, and every attempt should have been made to maintain a good urine flow by adding an osmotic diuretic if necessary.

ACTH might have been tried early. Prohaska[2] insists that it has a specific and dramatic effect in this disease. It would do no harm to try it, since the disease is a very lethal one when it fails to respond promptly to the other forms of treatment mentioned. ACTH effect might be studied in the chinchilla. Perhaps Prohaska has conducted such experiments, and I have failed to find a report of them in my limited search of the literature. If ACTH is effective, then we need to study its mechanism.

Fecal enemas from normal patients are recommended, although frequently the small bowel or even the stomach is involved. The administration of intestinal bacteria by mouth is probably to be considered, but I find it difficult to recommend carpophagia. It may be scientific, but it is out of line with the art of medicine.

Dr. Buckwalter: Thank you, Dr. Mason. Are there any films, Dr. Gillies?

Dr. Carl L. Gillies, Radiology: This film was taken postoperatively and does show the entire bowel to be distended, though not unduly so. You see it filled with gas, in both the small and large bowels. The film gives the appearance of an adynamic ileus.

Dr. Carleton Nordschow, Pathology: The findings that were of most interest were in the gastrointestinal tract, though there were some important ones in the adrenal gland and the kidney.

The interior of the descending colon possessed a rather diffuse, grey-green, shaggy covering upon its surface. When the abdomen was opened, the

entire gastrointestinal tract was found to be considerably distended—both the stomach and the small and large bowels. The stomach contained 500 cc. of rather clear fluid, and there was 60 cc. of milky fluid in the peritoneal cavity. A microscopic section showed complete necrosis of the colon wall. This was largely ischemic necrosis, with a superimposed complete cellular breakdown near the luminal zones. Many bacterial colonies were enmeshed in the surface exudate. The bacteria were gram-positive cocci.

Bronchopneumonia was present in the right lower lung. Staphylococcus aureus was cultured from this site, as well as from the colon.

In the adrenal gland and kidney, there occurred scattered small zones of coagulation necrosis of the parenchymal cells, without an attendant inflammatory cellular reaction. Bacteria could not be found in these foci. It is supposed that these may have represented small zones of cell death related to toxemia secondary to severe colonic bacterial infestation.

Arteriosclerosis of the kidneys, of general distribution, was present. This was moderate in degree. Another interesting finding in this case was the loss of perhaps 75 to 80 per cent of the pancreatic islets due to a severe, hyaline-type degeneration.

Death was attributed to septic shock.

Student: How much fluid was there in the rest of the gut?

Dr. Nordschow: There was very little fluid in the rest of the gut. I'm sorry, but since it wasn't measured I can't tell you the precise amount. I can only say that it was much less than 500 cc.

Student: Did you find any evidence of old lues?

Dr. Nordschow: None.

Dr. Buckwalter: Dr. Smith has some familiarity with the Staphylococcus, the villain in this case, and he is going to talk to us about it. If you will, Dr. Smith, please give us some advice concerning the antibiotics that should be used in such an explosive onset as occurred in this patient.

Dr. Ian Maclean Smith, Internal Medicine: Dr. Mason's excellent presentation leaves me little to add, but I should like to take up three minor points. First, there is an easier way to make the diagnosis, and it is by a gram-stained smear of the stool. In general, if 50 per cent or more of the organisms seen on a gram-stained smear are gram-positive cocci, one has his diagnosis and doesn't have to wait overnight for the results of the culture.

One problem associated with stool cultures is that from 10 to 20 per cent of normal people are fecal carriers of Staphylococci, and thus one can grow Staphylococci from stool specimens of normal people or of people who have diarrhea from another cause. Another problem is that the bacteriologist may grow the stool on inhibitory media that have been made specially for culturing Shigella and Salmonella, and thus your Staphylococci may be killed off. In a case like this, however, there are so many organisms that the number killed off wouldn't be great enough to make any difference.

Please note that this patient was getting tetracycline as well as neomycin. In my experience, it is most common to find that patients with staphylococcal diarrhea have been getting either tetracycline or a penicillin-streptomycin mixture. This brings us to the point which Dr. Mason mentioned —that we are dealing with competitive organisms. Escherichia coli is anti-staphylococcal, and when one reduces the population of Escherichia coli, he gets an overgrowth of Staphylococci, if any happen to be present in the bowel. Staphylococci often are present in the bowels of people who have been around a hospital for 10 days or longer. Fecal carriers of Staphylococci are more common among hospital patients than in the general population outside the hospital. This man had had some time to pick up Staphylococci, and he probably had done so.

In the administration of a stool enema, the competition of organisms was utilized in treating this patient, and it is a logical idea. But it is worth noting that competitive antibiotic therapy was used too, and with less justification. I am referring to the chloramphenicol. That antibiotic is anti-staphylococcal, all right, but it is also anti-Escherichia coli, and when one is trying to wipe out Staphylococci he shouldn't concurrently attack the competitors of those organisms.

Now, as Dr. Buckwalter asked, I shall undertake to say which antibiotics should be used in treating patients with pseudomembranous enterocolitis. These patients get sick very quickly, so there is an indication here for intravenous or intramuscular therapy. In addition, in order to get a maximum of antibiotic into the gut, one should use oral therapy, too. Novobiocin was used in the cases on the urological service, and it is a good choice at the present time. One must always assess the anti-staphylococcal antibiotics as of the current year, and *just now* about 90 per cent of the Staphylococci isolated *in this hospital* are sensitive to methicillin, a penicillin derivative, whereas only 60 per cent are sensitive to chloramphenicol. Now, 97 per cent of the Staphylococci isolated this year are sensitive to oxacillin, another penicillin derivative, so it is another agent that one might consider.

We have to think more definitely of bactericidal antibiotics, rather than of bacteriostatic ones. Chloramphenicol, tetracycline and novobiocin are all bacteriostatic. Of course, all the penicillins are bactericidal. This organism which is resistant to tetracycline (for if it weren't resistant to it, the patient couldn't have acquired it while on tetracycline), is probably also resistant to penicillin, since in the usual type of hospital survey we find

that bacteria resistant to one of this pair of agents is resistant to the other. Therefore, I think that ordinary penicillin G is not indicated. But one needs a penicillin that is resistant to penicillinase, and of course, we now have several of these. Two of the best known are methicillin (Staphcillin—Bristol), and oxacillin, also known as P12 (Prostaphlin—Bristol). These drugs have been chemically manipulated so that they are not destroyed by the penicillinase that the organisms produce, and so that they will be active against the penicillin-G-resistant Staphylococcus.

I should like to make two points about shock. First, the treatment advised is, of course, very necessary, but I think the primary step is to kill the Staphylococcus, for it is what is causing the shock. My second point is that cortisone has an anti-endotoxin effect that can be demonstrated in animals, but it also causes the organisms producing the endotoxin to multiply, and at least in human beings it cannot be shown that its anti-endotoxin effect outweighs its effect in multiplying the organisms. In other words, in tests conducted on patients either with this disease or with septicemia or meningitis, it has been shown that those given antibiotics alone do just as well as, or better than, those who are given cortisone in addition to antibiotics. So far, in patients with septic shock, it has not been possible to show that cortisone helps.

The incidence of adrenal failure from hemorrhage is very low, and therefore one wouldn't be expecting it. I don't know what to comment on the patient's histologic changes in relation to his adrenal function, but I would suspect that his adrenals were still working fairly well. Jackson's group and Lepper's group, both in Chicago, have shown by means of alternate case studies that although the steroids neutralize a lot of endotoxin experimentally, they cause no significant improvement in human patients with septic shock.

Dr. Henry E. Hamilton, Internal Medicine: Why was ACTH used, Dr. Mason? Was it suggested on the grounds of adrenal failure, or was there some other reason for suggesting it?

Dr. Mason: The theory was that it would be a treatment for pituitary adrenal insufficiency. But Prohaska feels that ACTH has some specific and direct neutralizing effect against staphylococcal enterotoxin. It would be interesting to study the effect of ACTH on the staphylococcal enterotoxin which also can be prepared and injected, and will cause the disease in susceptible animals. I don't think it has anything to do with the adrenal, however.

Dr. George Zimmerman, Pathology: We have implied, as we have been talking, that all cases of pseudomembranous enterocolitis are due to Staphylococci. Is that borne out statistically?

Dr. Mason: I get the impression that most people think it is, now, and that the reason we failed to recognize that fact for a long time was simply that we were not telling the bacteriologist what we were looking for when we sent our specimens to him. Of course, Staphylococci can be cultured from the stools of patients who may not have the disease. Fresh smears or scrapings from rectal mucosa should be stained with Gram's stain, and treatment must always be based on the complete clinical evaluation, and not on laboratory results alone.

Dr. Smith: I should like to refer to Dr. Finney's original case of pseudomembranous enterocolitis in the 1890's. The pathologists at Hopkins recut the pathology block and gram stain. It was loaded with Staphylococci, and thus Staphylococci were involved in Finney's original case. Occasional patients with Pseudomonas aeruginosa infections mimic the clinical picture detailed above.

Dr. Buckwalter: As we adjourn this conference, I should like to leave one thought with you. This patient, a man 70 years of age, was regarded as an excellent candidate for surgery. He had an elective operation, and he died. This is something we must think about when we consider the indications for the type of operation that he had, or for any other operation.

SUMMARY OF NECROPSY FINDINGS

Enterocolitis, acute, pseudomembranous type, distal sigmoid (Staphylococcus aureus)

Bronchopneumonia, acute, early (Staphylococcus aureus)

Shock, septic (Staphylococcus aureus)

Azotemia

Arterionephrosclerosis, moderately severe, with focal unilateral infarct of cortex, recent

Depletion of adrenal cortex

Cystitis, chronic

Hyalinization, islets of pancreas

Arteriosclerosis, generalized, moderate

CLINICAL DIAGNOSIS

Staphylococcal pseudomembranous enterocolitis

STUDENTS' DIAGNOSES

Pseudomembranous enterocolitis

Irreversible shock

Adrenal failure

Metabolic acidosis secondary to renal failure due to hypovolemia

DR. MASON'S DIAGNOSIS

Staphylococcal pseudomembranous enterocolitis

Renal failure from shock due to hypovolemia

REFERENCES

1. Bouillenne, R.: Man, destroying biotype. Science, **135**:706-712, (Mar. 2) 1962.

2. Prohaska, J. V., Mock, F., Baker, W., and Collins, R.: Pseudomembranous (staphylococcal) enterocolitis. Int. Abst. Surg., **112**:103-115, (Feb.) 1961 (In. Surg., Gynec. & Obst., Vol. 112 (2), 1961).

3. Dewberry, E. B.: Food Poisoning, Fourth Edition. London, Leonard Hill, 1959.

4. Dack, G. M.: Food Poisoning, Third Edition. Chicago, Univ. of Chicago Press, 1956.
5. Surgalla, M. J., and Dack, G. M.: Enterotoxin produced by micrococci from cases of enteritis after antibiotic therapy. J.A.M.A., **158**: 649-650, (June 25) 1955.
6. Tisdale, W. A., Fenster, L. F., and Klatskin, G.: Acute staphylococcal enterocolitis complicating oral neomycin therapy in cirrhosis. New England J. Med., **263**:1014-1016, (Nov. 17) 1960.
7. Finegold, S. M., and Gaylor, D. W.: Entercolitis due to phage type 54 staphylococci resistant to kanamycin, neomycin, paromomycin and chloramphenicol. New England J. Med., **263**:1110-1116, (Dec. 1) 1960.
8. Pettet, J. D., Baggenstoss, A. H., Dearing, W. H., and Judd, E. S., Jr.: Postoperative pseudomembranous enterocolitis. Surg., Gynec. & Obst., **98**:546-552, (May) 1954.
9. Turnbull, R. B.: Clinical recognition of postoperative micrococcic (staphylococcic) enteritis. J.A.M.A., **164**:756-761, (June 15) 1957.
10. Mason, E. E., and Kunau, R. T., Jr.: Current concepts of shock management. J. Iowa M. Soc., **52**:185-191, (Apr.) 1962.
11. Zucker, G., Eisinger, R. P., Floch, M. H., and Singer, M. M.: Treatment of shock and prevention of ischemic necrosis with levarterenol-phentolamine mixtures. Circulation, **22**:935-937, (Nov.) 1960.
12. Steiner, E. A.: Endemic pseudomembranous enterocolitis in hospital patients. Am. J. Gastroenterol., **30**:434-438, (Oct.) 1958.
13. Hardaway, R. M., Husni, E. A., Geever, E. F., Noyes, H. E., and Burns, J. W.: Studies on relationship of bacterial toxins and intravascular coagulation to pseudomembranous enterocolitis. J. Surg. Res., **1**:121-127, (July) 1961.
14. Feinberg, S. B.: Roentgen findings in severe pseudomembranous enterocolitis. Radiology, **74**:778-783, (May) 1960.

Coming Meetings

IOWA

Nov. 1	**Postgraduate Conference (AAGP and American Cancer Society).** Country Club, Red Oak
Nov. 7-8	**Institute on Abnormal Newborn.** S.U.I. College of Medicine, Iowa City
Nov. 7-9	**Annual Meeting of Iowa Welfare Association.** Hotel Savery, Des Moines
Nov. 10	**1962 Mercy Hospital Medical Day.** Mercy Hospital, Des Moines
Nov. 15-16	**The Aging Process—Multi-disciplinary Institute.** Knoxville Veterans Hospital, Knoxville
Nov. 16	**Otolaryngology for the General Practitioner.** S.U.I. College of Medicine, Iowa City
Nov. 30 (morning)	**Cardiac Conference—New Concept and Therapy in Hypertensive Disease (S.U.I. Department of Internal Medicine, Iowa Heart Association and Iowa State Department of Health).** University Hospitals, Iowa City
Nov. 30 (afternoon)	**Respiratory Diseases (S.U.I. Department of Internal Medicine, Iowa Thoracic Society and Iowa TB and Health Association).** University Hospitals, Iowa City
Dec. 4-5	**Pediatric Surgical Problems (S.U.I. Department of Surgery).** University Hospitals, Iowa City

CONTINENTAL U. S.

Nov. 1-2	**Multiple Injuries and Trauma.** University of California, San Francisco
Nov. 1-2	**Symposium on Neoplastic Diseases (University of Southern California).** Ambassador Hotel, Los Angeles
Nov. 1-2	**Eighth Annual Meeting of American Rhinologic Society.** Statler Hilton Hotel, Los Angeles
Nov. 1-2	**International Research Conference.** Lankenau Hospital, Philadelphia
Nov. 1-3	**Annual Course in Postgraduate Gastroenterology (American College of Gastroenterology).** Morrison Hotel, Chicago
Nov. 1-3	**Ninth Annual Meeting, Academy of Psychosomatic Medicine.** Radisson Hotel, Minneapolis
Nov. 3	**Practical Management of Problems in Adolescent Medicine.** Children's Hospital, San Francisco
Nov. 3	**Symposium on the Technics of Teaching Diseases of the Chest (Tuberculosis and Health Association of Los Angeles County).** Sheraton West Hotel, Los Angeles
Nov. 3-4	**Thirteenth County Medical Societies Conference on Disaster Medical Care.** Palmer House, Chicago
Nov. 3-4	**Problems in EKG Interpretation (University of California).** Mount Zion Hospital, San Francisco
Nov. 4-9	**American Academy of Opthalmology and Otolaryngology.** Las Vegas Convention Center, Las Vegas
Nov. 5-7	**Symposium on Obstetrics.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 5-16	**Surgical Technic.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Basic Internal Medicine.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Board of Surgery Reviews, Part I.** Cook County Graduate School of Medicine, Chicago
Nov. 5-16	**Gynecology, Office and Operative.** Cook County Graduate School of Medicine, Chicago
Nov. 7	**Teaching Seminar on Graduate Medical Education—"The Role of the Non-University Hospital."** Michael Reese Hospital and Medical Center, Chicago
Nov. 7-8	**Morris Ginsberg Memorial Seminar: Symposium on Renal Disease.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 7-8	**A. Morris Ginsberg Memorial Seminar (Department of Medicine of the Menorah Medical Center and the University of Kansas School of Medicine).** The Menorah Medical Center, Kansas City, Missouri
Nov. 7-8	**Nineteenth Annual Brennemann Lectures of the Los Angeles Pediatric Society.** Ambassador Hotel, Los Angeles
Nov. 7-10	**Fetal and Infant Liver Function and Structure (New York Academy of Sciences).** Henry Hudson Hotel, New York City
Nov. 8-10	**Atherosclerosis and Hypertension.** New York University Medical Center, New York
Nov. 9	**Sixth Annual Symposium on Diabetes (Diabetes Association of Greater Chicago).** Offield Auditorium, Passavant Memorial Hospital, Chicago
Nov. 9	**VD Conference—Youth and VD.** Morrison Hotel, Chicago
Nov. 9-10	**Clinics in Dermatology.** University of California, San Francisco
Nov. 9-10	**Sixteenth Annual Postgraduate Assembly of the San Diego County General Hospital (University of Oregon Medical School).** Town and Country Hotel, San Diego
Nov. 9-13	**American Otorhinologic Society for Plastic Surgery, Inc.** Ambassador Hotel, Los Angeles
Nov. 10	**Gastroenterostomy.** Presbyterian Medical Center, San Francisco
Nov. 10-11	**Clinics in Dermatology.** University of California, San Francisco
Nov. 12-14	**Sixty-Ninth Annual Meeting of the Association of Military Surgeons.** Mayflower Hotel, Washington, D. C.
Nov. 12-15	**Symposium on Internal Medicine.** University of Kansas School of Medicine, Kansas City, Kansas
Nov. 12-15	**Postgraduate Medical Study on Internal Medicine.** University of Kansas Medical Center, Kansas City, Kansas

Nov. 12-16 **Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs (American College of Chest Physicians).** Barbizon-Plaza Hotel, New York

Nov. 13-14 **Biannual Meeting of the California Conference of Local Health Officers.** Riverside County Health-Finance Building, Berkeley

Nov. 13-15 **Diagnosis and Practical Management of Arthritis.** Medical College of Georgia and Foundation, Augusta

Nov. 13-15 **Postgraduate Course on the Diagnosis and Practical Management of Arthritis.** Medical College of Georgia, Augusta

Nov. 13-16 **Surgical Rehabilitation of Arthritic Deformities.** New York University Medical Center, New York

Nov. 13-17 **Endocrinology and Metabolism (American College of Physicians).** Johns Hopkins Hospital, Baltimore

Nov. 13-17 **Postgraduate Course on Endocrinology and Metabolism.** The Johns Hopkins Hospital, Baltimore

Nov. 14 **American College of Physicians.** Statler Hotel, Los Angeles

Nov. 14-15 **Second Annual Milwaukee Medical Conference.** Milwaukee County Hospital, Milwaukee

Nov. 15-18 **San Diego Academy of General Practice.** Flamingo Hotel, Las Vegas

Nov. 17-18 **Postgraduate Course on Changing Concepts of Diagnosis and Management of Vascular Disease.** University of California, San Francisco

Nov. 17-18 **Psychiatry in General Practice, A Clinical Workshop (University of California).** Napa State Hospital, San Francisco

Nov. 17-18 **Psychiatry in Medical Practice (University of Southern California School of Medicine).** Santa Barbara County General Hospital, Los Angeles

Nov. 24-25 **Interim Session, American College of Chest Physicians.** Ambassador Hotel, Los Angeles

Nov. 24-25 **Medical and Surgical Aspects of Peripheral Vascular Disease.** University of California, San Francisco

Nov. 25 **Fifth Annual Medical Services Conference.** Los Angeles Biltmore, Los Angeles

Nov. 25-28 **American Medical Association Clinical Meeting.** Los Angeles

Nov. 26-30 **Surgery of Colon and Rectum.** Cook County Graduate School of Medicine, Chicago

Nov. 26-Dec. 7 **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

Nov. 26-Dec. 7 **Board of Surgery Review, Part II.** Cook County Graduate School of Medicine, Chicago

Nov. 26-Dec. 7 **Obstetrics, General and Surgical.** Cook County Graduate School of Medicine, Chicago

Nov. 26-Dec. 7 **Board of Surgery Review, Part II.** Cook County Graduate School of Medicine, Chicago

Nov. 29-30 **Scientific Session and House of Delegates of the American Medical Women's Association.** The Ambassador, Los Angeles

Nov. 29-Dec. 2 **American Medical Women's Association.** Ambassador Hotel, Los Angeles

Nov. 30-Dec. 1 **Practical Electrocardiography (University of California).** Franklin Hospital, San Francisco

Nov. 30-Dec. 2 **Postgraduate Course on Clinical Applications of Symptoms and Signs.** University of California, San Francisco

Dec. 1 **Pediatrics.** Presbyterian Medical Center, San Francisco

Dec. 1 **Annual Meeting of the West Coast Allergy Society.** Portland, Oregon

Dec. 1-2 **Psychiatric Perspectives in Medicine (University of California).** Stockton State Hospital, Stockton

Dec. 3-7 **Board of Internal Medicine Review, Part II.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 **Breast and Thyroid Surgery.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 **Psychiatry for the Internist (American College of Physicians).** Los Angeles County Hospital, Los Angeles

Dec. 3-7 **Management of Common Fractures and Dislocations.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 **Cardiopulmonary Diseases and Occupation (American College of Chest Physicians and the Industrial Medical Association).** Statler Hotel, Detroit

Dec. 4-6 **Orthopedics in General Practice.** Medical College of Georgia, Augusta

Dec. 4-7 **Scripps Clinic and Research Foundation, Institute for Cardiopulmonary Diseases.** Sherwood Hall, La Jolla

Dec. 6 **Electrolytes and Fluid Balance.** University of Nebraska College of Medicine, Omaha

Dec. 6-8 **Electrocardiographic Interpretation (University of Southern California).** Statler-Hilton Hotel, Los Angeles

Dec. 6-8 **Ocular Pharmacology and Therapeutics.** University of California, San Francisco

Dec. 7-8 **Puberty and the Climacteric.** University of California, San Francisco

Dec. 10-14 **Advances in Surgery.** Cook County Graduate School of Medicine, Chicago

Dec. 12-14 **Medical Considerations in the Surgical Patient (Hahnemann Medical College and Hospital).** Sheraton Hotel, Philadelphia

Dec. 13-15 **The Physician and the Emotionally Disturbed Patient.** University of California, San Francisco

Dec. 17-21 **Varicose Veins.** Cook County Graduate School of Medicine, Chicago

Dec. 17-21 **Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

Dec. 17-21 **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

ABROAD

Nov. 11-16 **World Medical Association.** Vigyan Bhawan Building, New Delhi, India. Write: Dr. Harry S. Gear, 10 Columbus Circle, New York 19

Nov. 18-24 **Asamblea Nacional de Cirujanos.** Hospital Juárez, Mexico City

Dec. **International Congress of Medical Women's International Association.** Philippines. Write: Dr. Rosita Rivera-Ramirez, Sta. Teresita Hospital, 82 D. Tuazon, Quezon City, Philippines

Jan. 25-Feb. 6, 1963 **Operation: Surgical Specialties (West Indies Congress of the International College of Surgeons).** Cruising aboard the S.S. Santa Rosa; clinical meetings in Puerto Rico, Jamaica, Haiti, Venezuela, Netherland West Indies. For arrangements contact International Travel Service, Inc., 116 South Wabash Avenue, Chicago 3

Feb. 20-24, 1963 **Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

May 2-5, 1963 **Hawaii Medical Association.** Princess Kaiulani Hotel, Honolulu

May 7, 1963 **World Health Organization.** Palais des Nations, Geneva, Switzerland. Write: World Health Organization, Office of the Director-General, Palais des Nations, Geneva, Switzerland

June 2-5, 1963 **Canadian Ophthalmological Society.** Royal York Hotel, Toronto

June 14-16, 1963 **Society of Obstetricians and Gynaecologists of Canada.** Delawana Inn, Ontario

Sept. 19-21, 1963 **Congress of the International Society of Cardiovascular Surgery.** Rome, Italy. Write: H. Haimovici, M.D., 862 Park Avenue, New York 21

Oct., 1963 **American Society of Plastic and Reconstructive Surgery.** Hawaiian Village Hotel, Honolulu. Write: T. Ray Broadbent, M.D., Secretary, 508 E. South Temple, Salt Lake City

The Shortcomings of Cervical Cytology

With the increased use of cervical cytology in recent years, the lay public and some physicians have remained insufficiently aware of its serious limitations. Cervical cytology is primarily useful in the detection of cervical carcinoma in the asymptomatic woman with a grossly normal appearing cervix. Many of our patients fail to realize that these "cancer smears" will not detect cancer of the body of the uterus, cancer of the pelvic organs in general, or cancer anywhere else in the body.

The real value of cytology lies in its use as a method of screening normal, asymptomatic patients who occasionally harbor microscopic changes in the cervical epithelium which will, eventually, progress to obvious invasive carcinoma of the cervix.

Cytology may be of some use in studying a symptomatic patient, but it is never a satisfactory substitute for a cervical biopsy and/or a curettage in such a woman. I have recently seen a surgical specimen of a carcinoma that arose in a cervical stump. It presented as an obvious lesion, with symptoms of vaginal discharge and bleeding. Three or four different physicians had taken Papanicolaou smears from the patient, and had reported them as normal. Finally, a surgeon removed the stump, and the diagnosis was established only after that major surgical procedure. A simple biopsy of an obvious lesion would have led to prompt and satisfactory treatment for that patient. The cytology smears had been negative because the lesion had been on the portion of the cervix away from the external os, whereas the smears evidently had come from the external os, rather than from the lesion.

In taking cytologic specimens from the cervix, the preservation of cellular detail in the smears is most important. Atypical cells tend to be less cohesive than normal ones, and as a result a proportionally greater number of atypical cells are shed, facilitating the determination of their presence by means of cytologic studies.

Pathologists vary somewhat, one from another, in their interpretations and reports of interpretations of cytologic smears. When a physician is in any doubt about the meaning of such a report, he should confer with the pathologist about it. Such a consultation will aid him in the management of the patient.

A cytologic indication for further investigation of the patient should never be regarded as an indication for definitive surgery or radiation therapy. Cytology indicates no more than a necessity for an adequate search for the source of the atypical cells. In fact, atypical cervical cytology *contraindicates* definitive surgical therapy until the source of the atypical cells has been adequately investigated.

In recent months I have seen several uteri from patients who had been subjected to hysterectomy because of atypical cytology, but who had not been studied for the source of the atypical cells. Some of them had invasive carcinoma of the cervix extending deep into the underlying cervical tissue. Such inadequate surgical therapy is an injustice to the patient, and it also brings unmerited discredit to cervical cytology as a diagnostic procedure.

The patient who is shedding atypical cells may have invasive carcinoma of the cervix. She may have preinvasive (*in situ*) carcinoma of the cervix, or she may have inflammatory changes resulting in the shedding of atypical cells. With patients who are shedding atypical cells, the individual's status and the source of the cells must be determined before definitive treatment can be correctly chosen.

Proper investigation of these asymptomatic patients who are grossly normal in appearance, but are shedding atypical cells, consists of cold conization of the cervix. This procedure will provide the pathologist with an adequate tissue specimen of the entire circumference of the cervix in the area of the squamocolumnar junction, so that he can study the cervical tissue carefully and establish the source of the atypical cells.

When one takes a cone biopsy as a means of identifying the source of atypical cells, he should make every effort to preserve the cellular detail. The distortion of cellular detail resulting from the use of electro-cautery can destroy the value of the biopsy. In a cone biopsy that I saw recently, the epithelium had been completely destroyed by the desiccating effect of the electrosurgical unit, and thus the usefulness of the entire chain of diagnostic endeavors had been lost.

In taking a cone biopsy, it is important to obtain enough cervical stroma to permit a careful study of the relationship between the epithelium and the underlying stroma. Thus, there should usually be about 2 cm. of cervical portion at the base of the cone. Some of the mechanical gadgets sold at the surgical supply houses do little more than shave the epithelium from the external os—literally, with a razor blade! A tissue specimen of that sort is inadequate for a satisfactory evalua-

tion of the cervical epithelium, and in reality is of little more use than a cytology smear.

Even mild trauma to the cervical epithelium, resulting from manual examination, scrubbing the epithelium in preparation for the surgical procedure, or sponging or rough handling of the cervical epithelium during the surgical removal, may result in the loss of the less cohesive atypical cells.

Confer with the pathologist who studies your cytologic and tissue specimens. He will be more than delighted to discuss the modifications in your technic that would result in your sending him better samples for study.

—*Richard M. Moore,* M.D.

Intermittent Claudication

Begg and Richards,* of the Western Infirmary, Glasgow, have reported upon a group of 198 patients with intermittent claudication who were followed for periods of five to 12 years, or to death. These patients were treated symptomatically, except for 69 who had lumbar sympathectomies. Such a study imparts a knowledge of the clinical course of the disease which is essential before intelligent decisions can be made concerning the management of the individual case.

It was Charcot who first described intermittent claudication of the muscles of the calf in man as a symptom of obstruction to the flow of blood in the arteries of the legs. Pain in one or both gastrocnemius muscles in intermittent claudication is attributed to regional ischemia in the involved muscles due to chronic arterial insufficiency. It is now recognized that the condition is caused by atherosclerosis.

In the Glasgow study, patients with pain at rest and with marked nutritional changes in the feet, were excluded. The group was composed mostly of males for it consisted of 184 men and 14 women. The mean age was 55.4 years, the youngest patient being 21 years, and the oldest 76 years of age. Surprisingly, only eight of the patients were diabetics. The duration of the claudication averaged 20 months, and varied from a few days to several years. However, the onsets had been so insidious that in most of the patients an accurate date of onset was difficult to establish.

In calculating the mortality and survival rates, the authors employed the date on which the patients were admitted to the peripheral vascular clinic, rather than basing their figures upon the duration of symptoms. More than one half of the group had clinical evidence of bilateral arterial disease in the legs. Eighteen of the patients had a high level of occlusion either in the aorta or in the iliac artery, and in seven the condition was bilateral. In 134 patients, the occlusion was at the level of the femoral or popliteal artery, and there were almost equal numbers with unilateral and bilateral involvements. There were 27 patients who had unilateral distal-arterial occlusion.

During the five-year period during which all patients were followed, there were 50 deaths—a mortality of 25.3 per cent. Not all of the patients were followed longer than five years, but from the available evidence the mortality appeared to accelerate thereafter, and at 10 years it was estimated to be 58.3 per cent. When compared with the expected mortality rate for a population of similar age and sex distribution, the group with claudication had a higher mortality than expected. There were 92 deaths, 79 of which were caused by cardiovascular disease. The most common single cause was myocardial infarction.

Of the factors which influenced the prognosis in patients with claudication, those which indicated the presence of general cardiovascular disease were most important. The age of the patient was not found to be a significant factor, for survival curves did not differ materially from those of similar age groups in the normal population. Hypertension and ischemic heart disease affected the prognosis adversely. The duration of the claudication when the patient was first seen, the level of the occlusion, and whether the arterial occlusion was unilateral or bilateral—none of these had any appreciable effect upon the prognosis. The group with claudication had survival rates very similar to those of patients who presented with angina or with myocardial infarction.

Despite the involvement of the arteries of the legs the prognosis for the limb was good. Only 7.1 per cent of the patients required amputation, and amputation was necessary in only 6.6 per cent of the survivors.

Many of the patients who survived were disabled by cardiac or cerebral vascular disease. The symptoms of claudication remained about the same or were somewhat improved. Lumbar sympathectomy was performed 69 times, and from this experience it appeared that the patient with claudication who is beginning to develop rest pain or ischemic nutritional changes in the feet does derive benefit from sympathectomy.

As a result of the study, Begg and Richards concluded that the importance of intermittent claudication is that it usually indicates atherosclerosis that is generalized and not just confined to the lower limbs. Whether the treatment should be medical or surgical depends upon the degree of generalized atherosclerosis. Patients who are candidates for definitive arterial surgery must be selected with great care. The opthalmoscope, the sphygmomanometer, the electrocardiogram and, in certain cases, arteriography are helpful tools in the selection of candidates.

* Begg, T. B., and Richards, R. L.: Prognosis of intermittent claudication. SCOTTISH MEDICAL JOURNAL, 7:341-352, (Aug.) 1962.

We Can Help Prevent Diphtheria Outbreaks

The recent cases of diphtheria in two northwest Iowa communities were regrettable—particularly regrettable because diphtheria is a preventable disease. According to available information, the infected children had received primary immunization in infancy, but had been given no recall injections.

The 1961 Report of the Committee on the Control of Infectious Diseases of the American Academy of Pediatrics is very specific in its recommendations concerning routine recall inoculations:

1. Children who have received three doses of triple antigen and polio vaccine in infancy should be given recall doses at 12 to 18 months of age. An additional 0.5 ml. dose of triple antigen plus polio vaccine at about four years of age is recommended, thus assuring a relatively high level of immunity up to school age. If this is not done at 3-4 years of age as recommended, it should be carried out at the time the child enters school.

2. Children over 6 years of age who have received a primary course of triple antigen in infancy should be given (a) 0.5 ml. of tetanus-diphtheria toxoid, "adult type," at 8, 12 and 16 years of age. Maintenance of optimal protection thereafter requires additional injections. (b) To maintain immunity to pertussis, recall injections of 0.5 ml. of plain pertussis vaccine would be required at three- to four-year intervals. Beyond the age of entry into school, however, routine recall doses of pertussis vaccine are considered unnecessary.

3. Smallpox revaccination and tetanus toxoid boosters should be given every five years thereafter, for assured maintenance of immunity.

The unfortunate outbreak of diphtheria this year should be an object lesson not only to physicians but to parents, school administrators and community health officers as well. Failure to maintain an adequate level of immunity in the child is usually the result of carelessness, and not infrequently can be attributed to a lack of communication among the agencies concerned.

Every physician caring for children should maintain a current file of his patients' immunizations, and should send a notification card to each of them when a recall injection is indicated for him. School administrators should insist that each child present evidence that his immunizations are up to date before admitting him to classes. Health officers and medical societies should initiate the publicity necessary to keep parents informed about the need for booster injections.

It would be advisable for each community in the state to evaluate the measures by which it is maintaining immunity to disease for its children!

Beware: Farm Accidents Are in Season!

With the harvesting of another bumper crop of corn in progress, the annual toll of injuries and deaths from farm accidents will occur. Every means of communication should be employed in urging farmers to exercise caution in the use of the tractor, the power take-off, the corn picker, and the elevator. The factors which contribute to accidents in the use of mechanical equipment should be emphasized again and again. Haste, fatigue and carelessness are the most important of these. Ill-fitting gloves and loose clothing can become caught in moving parts. Inadequate training in the use of equipment has often been responsible for serious injury. Attempts to correct mechanical difficulties without stopping the machine have caused many maimings.

The S.U.I. Institute of Agricultural Medicine has requested physicians to report farm accidents. Your cooperation in this effort may give much-needed support to a serious attempt at getting protective devices and relatively trouble-free machines that may constitute the beginning of the end of this problem.

America, Take Heed!

The concluding paragraphs of a speech given by Dr. John Seale at the Liberal Party's summer school at Cambridge, England, and published in the BRITISH MEDICAL JOURNAL* should be given wide publicity in this country. Despite British pride and chauvinism, it would appear that responsible people are willing to admit that the National Health Service, which has been in operation for 14 years, has failed to create a Utopia. Here are the paragraphs to which we have referred:

"I believe that the function of the State is, in general, to do those things which the individual cannot do, and to assist him to do things better. It is not to do for the individual what he can well do for himself. In the case of medical care, first it should ensure that no individual should be without it because of inability to pay; secondly, it should assure that nobody suffers heavy financial loss because of medical expenses; and, thirdly, it should ensure an environment in which medical care of high quality can flourish. To achieve these objectives it is unnecessary to nationalize all medical facilities and provide all medical care free of charge. The National Health Service has placed too much responsibility for personal health on the State, and in removing it almost entirely from the individual, it is undertaking many func-

* Seale, J.: Health Service in affluent society. BRITISH M.J., 2:598-602, (Sept. 1) 1962.

tions which the individual should carry out himself. Not only is a virtual State monopoly for providing medical care an inappropriate environment for good medical practice to flourish in, but the paternalism of the Health Service has restricted the freedom of the patient, of those working in the Service, and of the local community.

"I should like to see reform in the Health Service in the years ahead which is based on the assumption of individual responsibility for personal health, with the State's function limited to prevention of real hardship and the encouragement of personal responsibility. This may not seem like a proposal whereby a political party may gain votes, but in our country I do not believe that votes go only to politicians who offer the greatest quantity of largesse to the population. If they do, then it is not only the British National Health Service which is heading for trouble; it is Britain herself."

Suppurative Parotitis

A recent report from the Department of Surgery at the University of Oregon* indicates an increasing incidence of suppurative parotitis. On the other hand, an aggressive therapeutic approach to the disease has transformed it from an entity with a grave prognosis to one with a much less ominous character. The report is a retrospective study of 161 cases observed over a period of 20 years.

In the Multnomah County Hospital, at Portland, there has been a growth in the frequency of such cases in the last 20 years. This increase has not occurred at the private community hospitals in the area, however, for there the incidence of the disease has remained almost constant.

Suppurative parotitis, in the experience of the Oregon group, is primarily a disease of the aged, the vast majority of patients being over 60 years of age. At the County Hospital there had been a marked increase in the total numbers of aged patients—by a factor of four over the 20 year period. This development, too, had failed to occur at the private hospitals, and as a matter of fact it appeared that the increased incidence of suppurative parotitis at Multnomah County Hospital was a consequence of the increase in the number of aged patients there.

Characteristically, the disease had attacked the very ill patient. Of the 161 patients, 131 were suffering from severe or multiple diseases, and over half had preexisting major infection elsewhere in their bodies. Surprisingly in only one third of the patients had the disease developed postoperatively.

The majority of suppurative lesions of the parotid were found to have been due to a Staphylococcus. Transductal inoculation appeared to have been the atrium of infection in most of the cases. Patients who had septicemia due to other organisms developed parotitis due to the Staphylococcus. In some patients whose staphylococcal wound infections antedated the parotitis, the organism in the parotid was found to be of a different phage type. Poor oral hygiene and insufficient oral intake predisposed to the infection. Postoperative parotitis occurred particularly following abdominal and orthopedic operations. The condition of the patient appeared to be a more important predisposing factor than the operation *per se*. Dehydration, malnutrition and oral cancer or infection were frequent antecedents of the disease. Ordinarily suppurative parotitis has been considered exclusively a hospital problem, but one third of the 161 patients had been admitted from their own homes or from nursing homes.

The mortality from suppurative parotitis dropped sharply about 1945, when antibiotics first were used, and it has gradually declined in recent years. Prior to the antibiotic era, the reported mortality varied from 30 to 80 per cent. Despite the gravity of associated diseases and the advanced ages of the majority of the patients, at the present time nearly 80 per cent of all patients with parotitis can be salvaged.

From their experience with suppurative parotitis, the Oregon group recommends the following plan of management:

1. As soon as the diagnosis is made, smears and cultures should be obtained by milking the duct on the involved side.

2. Immediate efforts should be made to improve oral hygiene, hydration and nutrition.

3. If the disease is less than 24 hours old and if the patient is suffering considerable pain, irradiation of the gland, in small doses, may prove helpful.

4. The early use of the type-specific antibiotic is essential. If the patient is gravely ill, an antibiotic known to be effective against the Staphylococcus most commonly encountered in the hospital should be given promptly, though the drug may be changed after the results of sensitivity studies are known.

5. An attempt to drain the gland by gentle probing of the duct should be attempted.

6. If, despite the measures enumerated, the disease persists or progresses, incision and drainage should be considered as early as the third day. Surgical treatment should never be deferred beyond the fifth day. The preferred technic consists of incising and reflecting flaps of skin and subcutaneous tissue to expose the gland. A hemostat is then inserted, and opened in the direction of the course of the facial nerve.

* Krippachne, W. W., Hunt, T. K., and Dunphy, J. E.: Acute suppurative parotitis. ANN. SURGERY, **156**:251-257, (Aug.) 1962.

Antibiotics did not prevent suppurative parotitis, for 41 per cent of the patients in the study had been receiving antibiotics of some type at the onset of this disease. The lowest mortality resulted in patients treated with type-specific antibiotics, and many patients responded to that type of therapy alone. Irradiation was thought to be of secondary importance in the treatment, and if employed it should be given in the first 24 hours. Incision and drainage were done 53 times in 47 patients and usually followed a period of antibiotic therapy, supportive measures and irradiation. The determination of the precise indications for early drainage was difficult because there are no reliable clinical signs. Fluctuation did not develop until late in the disease.

Gynecomastia Developing During Digitalis Therapy

In 1953 LeWinn* reported 14 cases of gynecomastia which had developed during digitalis therapy, and occasional isolated instances of that sort have since been reported in the literature. This unusual occurrence is intriguing, and if the breast enlargement is due to the drug it is surprising that it has not been more generally recognized as a side effect of digitalis therapy.

The ages of the patients observed by LeWinn varied from 53 to 77 years, and all were being treated for congestive failure. The condition manifested itself by pain in the breast, accompanied by disc-like swelling. There was a subsidence of the symptoms and signs when digitalis was discontinued, and a recurrence when administration of the drug was resumed. A gradual diminution of breast enlargement was observed after several months of digitalis therapy. No correlation could be found between the size of the dose or the type of digitalis preparation and the degree of breast development. Gynecomastia was not present before digitalization, when cardiac failure was most marked and congestion of the liver most severe. Enlargement of the breasts did not occur until after weeks or months of digitalis administration.

The cardiotonic glycosides contain a phenanthrene nucleus in common with steroid hormones, cholesterol and vitamin D. It is postulated that in the group of older men, the digitalis steroids have an estrogen-like effect. In the age group observed, it was thought that there was probably a relative lack of both testicular and adrenal androgens, which enhanced the estrogenic effect of the digitalis.

Gynecomastia is not uncommon in patients with cirrhosis of the liver, and because of this fact LeWinn questioned whether the breast enlargement was due to digitalis *per se*, or whether the impairment of liver function in congestive failure simply intensified any estrogenic effect the digitalis steroids possess. Liver function studies were performed on seven of the patients. Four had minimal to moderate degrees of hepatic impairment, as determined by bromsulfalein excretion. The serum bilirubin, cholesterol ester and thymol turbidity were normal in all seven patients. Though the precise breakdown of digitalis in the body is still controversial, it is assumed that the phrenathrene derivatives, like the steroids, undergo modification, and possibly esterification in the liver before being excreted in the urine.

In the new third edition of his TEXTBOOK OF ENDOCRINOLOGY, Robert H. Williams** suggests a different theory for the development of gynecomastia in patients receiving digitalis. He recalls that after World War II a peculiar type of painful breast enlargement was observed in American soldiers who had been released from prisoner of war camps. The gynecomastia developed when the men were recovering from malnutrition, but was not present during the period of inanition when a derangement of liver function may have existed. For this reason, the condition was designated "re-feeding gynecomastia." It was postulated that pituitary gonadotropin was very sensitive to protein deprivation, and that as a consequence there was probably a diminution in testicular function because of pituitary "shut-down." When the diet was improved and metabolism returned to normal, pituitary gonadotropin secretion resumed, resulting in "secondary puberty." Williams proposes this as the probable mechanism by which breast enlargement occurs in the patient with congestive failure while receiving digitalis therapy, and the same mechanism, he thinks, may apply in the gynecomastia which occurs in patients with liver disease.

* LeWinn, E. B.: Gynecomastia during digitalis therapy. NEW ENGLAND J. MED., 248:316-320, (Feb. 18) 1953.

** Williams, Robert H.: TEXTBOOK OF ENDOCRINOLOGY, THIRD EDITION. Philadelphia, W. B. Saunders Company, 1962, pp. 431-432.

Have You Informed Us of Your Change of Address?

Postal regulations on second class mail have become more stringent. Under a new ruling, we must pay ten cents per piece for undeliverable second class mail, but worst of all, if you don't happen to reside or practice at the *precise* mailing address which we have for you, your JOURNAL will not be delivered. We urge promptness on the part of all JOURNAL readers in notifying us of address changes!

President's Page

The Keogh Bill (H.R. 10) as amended and finally passed by the 87th Congress, isn't all that the AMA and like-minded groups hoped that it might be as they worked to secure its adoption. Yet, it permits a limited tax deferment to physicians, other professional men and small businessmen in setting up retirement-income programs for themselves and their employees.

I should like to caution my fellow physicians not to jump to the conclusion that because annual contributions by the self-employed to such plans are limited under the new law, or because tax deferments are to be permitted on no more than half of those limited contributions, that the measure will be of little use to them. As the analysis on the "green sheet" in this issue of the JOURNAL makes clear, the compound interest (or compounded dividends) on their shares of retirement-income funds will be taxable to them only after their retirement, and the resultant savings are likely to be large ones.

I urge every doctor to study the law carefully, and to consult his attorney about the best way for him to utilize its provisions.

George K. Scanlon

President

THE JOURNAL *Book Shelf*

BOOKS RECEIVED

CLINICAL DIAGNOSIS BY LABORATORY METHODS, THIRTEENTH EDITION, by *Israel Davidsohn*, M.D., and *Benjamin B. Wells*, M.D., Ph.D. (Philadelphia, W. B. Saunders Company, 1962. $16.50).

PROGRESS IN NEUROLOGY AND PSYCHIATRY, VOL. XVII, ed. by *E. A. Spiegel*, M.D. (New York, Grune & Stratton, 1962. $14.00).

SURGICAL PRACTICE OF THE LAHEY CLINIC, by members of the Staff of the Lahey Clinic, Boston. (Philadelphia, W. B. Saunders Company, 1962. $17.00).

PULMONARY STRUCTURE AND FUNCTION, ed. by *A. V. S. DeReuck*, M.Sc., and *Maeve O'Connor*, B.A., for the Ciba Foundation. (Boston, Little, Brown and Company, 1962. $11.50).

HEART-LUNG BYPASS, by *Pierre M. Galletti*, M.D., Ph.D., and *Gerhard A. Brecher*, M.D., Ph.D. (New York, Grune & Stratton, 1962. $14.50).

DOCTOR AND PATIENT AND THE LAW, FOURTH EDITION, by *C. Joseph Stetler*, LL.B., LL.M., and *Alan R. Moritz*, A.M., Sc.D., M.D. (St. Louis, The C. V. Mosby Company, 1962. $14.75).

IMMUNOASSAY OF HORMONES, A CIBA FOUNDATION COLLOQUIUM ON ENDOCRINOLOGY, VOL. XIV, ed. by *G. E. W. Wolstenholme*, M.A., M.R.C.P., and *Margaret P. Cameron*, M.A. (Boston, Little, Brown and Company, 1962. $10.75).

THIS AIR WE BREATHE, by *Clarence A. Mills*, M.D., Ph.D. (Boston, The Christopher Publishing House, 1962. $4.00).

NUTRITION IN A NUTSHELL, by Roger J. Williams. (Garden City, N. Y., Doubleday & Company, Inc., 1962. 95c).

CURARE AND CURARE-LIKE AGENTS (Ciba Foundation Study Group No. 12), ed. by *A. V. S. DeReuck*, M.Sc. (Boston, Little, Brown and Company, 1962. $2.95).

PHARMACOLOGY AND PATIENT CARE, by *Solomon Garb*, M.D., and *Betty Jean Crim*, R.N., M.Ed. (New York, Springer Publishing Company, Inc., 1962. $4.00).

THE EPIC OF MEDICINE, ed. by *Felix Marti-Ibanez*, M.D. (New York, Clarkson N. Potter, Inc., 1962. $12.50 pre-Christmas; $15.00 thereafter).

BRAY'S CLINICAL LABORATORY METHODS, SIXTH EDITION, revised by *John D. Bauer*, M.D., *Gelson Toro*, Ph.D., and *Philip G. Ackermann*, Ph.D. (St. Louis. The C. V. Mosby Company, 1962. $10.50).

SYNOPSIS OF NEUROLOGY, by *Francis M. Forster*, B.S., M.D. (St. Louis, The C. V. Mosby Company. 1962. $6.75).

FUNDAMENTALS OF VOLUNTARY HEALTH CARE, ed. by *George B. deHuszar*. (Caldwell, Idaho, The Caxton Printers, Ltd., 1962. $6.00).

RESEARCH APPROACHES TO PSYCHIATRIC PROBLEMS: A SYMPOSIUM, ed. by *Thomas T. Tourlentes*, M.D., *Seymour L. Pollack*, M.D., and *Harold E. Himwich*, M.D. (New York, Grune & Stratton, Inc., 1962. $5.50).

A MANUAL FOR PSYCHIATRIC CASE STUDY, SECOND EDITION, ed. by *Karl A. Menninger*, M.D. (New York, Grune & Stratton, Inc., 1962. $5.50).

BOOK REVIEWS

PERIPHERAL VASCULAR DISEASES, THIRD EDITION, by *Edgar V. Allen*, M.D., *Nelson W. Barker*, M.D., and *Edgar A. Hines, Jr.*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $18.00).

The third edition of this popular reference volume by the Mayo Clinic group dealing with peripheral vascular diseases has been considerably expanded since the 1956 second edition. This growth reflects new developments in the prevention and treatment of intravascular thrombosis; cerebral arterial diseases, including the surgical treatment of extracranial occlusion of the cerebral vessels; and angiography. A discussion of visceral aneurysms is also introduced for the first time.

Dermatologists might quarrel with the inclusion of such lesions as erythema nodosum, erythema induratum and Weber-Christian disease in a chapter on inflammatory and non-inflammatory arterial lesions, but one might equally well take exception to the omission of arterial hypertension.

A feature of previous editions which has been retained is the inclusion of portraits and brief biographical sketches of pioneer investigators in the field of peripheral vascular diseases, from Harvey's time to the present. Iowans will be particularly interested and pleased to see that the head of the Department of Medicine at the S.U.I. College of Medicine, Dr. William B. Bean, has been so honored for his "superb" description of vascular lesions of the skin.—*Herman J. Smith*, M.D.

ELECTROCARDIOGRAPHY: FUNDAMENTALS AND CLINICAL APPLICATION, THIRD EDITION, by *Louis Wolff*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $8.50).

That the burgeoning field of electrocardiography is beginning to stabilize is indicated by the relatively minor changes required in the text of this third edition, after a lapse of six years.

Dr. Wolff has, however, placed increased emphasis on vectorcardiography in the interpretation of the numerous electrocardiograms reproduced in the new volume. The section on cardiac arrhythmias has been expanded with new material on parasystole, digitalis intoxication, and complex disorders of the heart beat. Vectors are called upon to sharpen criteria for pulmonary embolism, ventricular hypertrophy, and bundle branch block patterns.

There is a comprehensive and well-arranged index which adds materially to the usefulness of this compact text.—*Herman J. Smith*, M.D.

CLASSICS OF CARDIOLOGY, VOLS. I AND II, ed. by *Fredrick A. Willius*, M.D., and *Thomas E. Keys*, M.A. (New York, Dover Publications, Inc., 1962. $2.00 ea.).

Fifty-three articles are included in these two paperbound volumes. Preceding each article is a short summary of the achievements of its author.

These "cardiac classics" make interesting reading, but their value for the practicing physician is slight. —*John E. Gustafson*, M.D.

SURGERY OF THE AMBULATORY CHILD, by *S. Frank Redo*, M.D. (New York, Appleton-Century-Crofts, Inc., 1961. $8.50).

This is another book on pediatric surgery and treatment not meant to compete with or to replace larger, more complete volumes. There are other books on ambulatory surgery of the adult which offer more information and which can be adapted to children by men who are experienced with children's cases.

A chapter on burns, bites and stings assembles information otherwise difficult to find, and is well done.

Perhaps this book will have value to interns and residents on outpatient or emergency-room service, but it is not suitable for ready reference.—*Anthony H. Kelly*, M.D.

DR. MARY WALKER: THE LITTLE LADY IN PANTS, by *Charles McCool Snyder*, Ph.D. (New York, Vantage Press, Inc., 1962. $3.95).

I highly recommend this delightful biography of a pioneer woman doctor of the Civil War days, for relaxing, humorous reading and for its presentation of a tremendously vigorous personality.

Seemingly, Dr. Walker set out to do everything a woman was not supposed to do in the 1800's, and she accomplished them, even by such means as putting on pantaloons to get into the army! In the end, she was awarded a Congressional Medal of Honor.

In order to retain social acceptability, most of us are careful not to deviate from mores and traditions, but in our reading we like to learn of people who have done the opposite. I'm not so certain that in today's terms the subject of this biography should have been called "the little *lady* in pants."—*Clysta Ann Richard*, M.D.

BETWEEN US WOMEN: A WOMAN DOCTOR'S HANDBOOK ON PREGNANCY AND BIRTH, by *Laura E. Weber*, M.D. (New York, Doubleday & Company, Inc., 1962. $1.95).

This handbook on pregnancy and birth contains 147 pages, and only two pages of illustrations—of postpartum exercises. The chapter titles are eye-catching, and arouse curiosity, but the presentations are such that if a patient wanted to find the answer to a particular question, she would have to search for it.

I feel that the author has identified herself too much with the patient, probably because she has had children of her own. The title demonstrates this fact. From the patient's point of view, why should a woman doctor's handbook be any different from one written by a man doctor?

The book is interestingly written, and holds one's attention well. In some instances, technics and complications are discussed in too much detail, for such topics should be left for oral discussions between doctor and patient. For example, on page 20, Rh problems are taken up. These difficulties are handled differently in various parts of the country, depending upon the accepted medical practice in the particular location.

I am of the opinion that patients appreciate more illustrations.—*Clysta Ann Richard*, M.D.

ADVANCES IN RHEUMATIC FEVER, by *May G. Wilson*, M.D. (New York, Hoeber Medical Division, Harper & Row, Publishers, Inc., 1962. $10.00).

The material presented in this excellent monograph is based on a study of patients over a period of 40 years. As director of rheumatic fever research at the New York Hospital, Dr. Wilson has had a unique experience in the study of this disease.

The book is presented in four sections: (1) Epidemiology, (2) Current concepts of the nature of the disease, (3) Diagnosis and the course, and (4) Management. Much detail is presented throughout to make the presentation equally valuable to the investigator and to the practitioner.

Truly, this monograph, written by an unquestioned authority on the subject, provides a very valuable reference on all of the academic and clinical aspects of rheumatic fever.—*M. E. Alberts*, M.D.

THE LIFE OF PASTEUR, by *Rene Vallery-Radot*. (New York, Dover Publications, 1960. $2.00).

This firm is reprinting old scientific classics unabridged, in paper-backed volumes. In doing so, it is reexposing the reading public to monumental works of days gone by. This particular volume was written in 1906, and has been republished in 1960 and 1962. It tells the now familiar story of one of the world's foremost scientists, who lived during the time of the birth of the scientific method. Pasteur was a chemist, and began his investigations as such, with a study of the crystal formation of tartaric acid. He was then led progressively into the problems of the wine industry, of the silk industry, and finally of the medical profession. He battled those who believed in the spontaneous generation of life, and fought for progress in scientific education.

We all know of "pasteurization" and of his work with rabies, but perhaps his most striking contribution to science was in the development of the scientific method, for he lived in an era in which mysticism and "alchemy" were dying. The dying was hard, however, and he assisted in the triumph of science over mere "opinions" and "beliefs." We still adhere to his methods of painstaking research, although of course the spectre of unfounded opinion is still with us.

The book is liberally sprinkled with Pasteur's own words and ideas, and after reading it one is bound to agree with the writer of an anonymous letter to the SPECTATOR who said "that he was the most perfect man who has ever entered the Kingdom of Science."—*Daniel A. Glomset*, M.D.

SYNOPSIS OF OBSTETRICS, SIXTH EDITION, by *Charles E. McLennan*, M.D. (St. Louis, The C. V. Mosby Company, 1962. $6.75).

SYNOPSIS OF OBSTETRICS originated with Dr. Jennings C. Litzenberg, in 1940. In this sixth edition, Dr. McLennan has rearranged the chapters of the book to follow a more normal sequence of events, starting with ovulation and ending with puerperal infections and obstetrical surgery. This edition has also been brought up to date by the substitution of new illustrations and current thinking, and appears to be quite accurate in its descriptions and views of obstetrical problems.

Like other synopses, this book should not be used as a substitute for one of the major works in obstetrics. The student should use it as he would use lecture notes—for review rather than for primary learning. The advantage of this type of book over lecture notes lies mainly in the fact that it is well organized and follows a pattern like that of the larger textbooks of obstetrics. It certainly is a handy, compact volume, and it will provide a review for the general practitioner who may wish to refer quickly to some phase of obstetrics that has slipped his mind.

In recommending this book, I would say that if the doctor is accustomed to referring to this type of work in his practice, this certainly is one of the better synopses of obstetrics. If the physician is not accustomed to using this type of abbreviated textbook, he will find little use for this one.—*Claude H. Koons*, M.D.

AMA-ERF Student Loan Fund

A far reaching new medical education loan guarantee program is now under way in American medicine. The goal of this program is to help eliminate the financial barrier to medicine for all who are qualified and accepted by approved training institutions. It is designed to provide a means of financing a substantial portion of the cost of a medical education.

The loan program for medical students, interns and residents is the result of a cooperative effort by American medicine and private enterprise.

The program is administered by the American Medical Association's Education and Research Foundation. The ERF has established a loan guarantee fund. On the basis of this fund, the bank will lend up to $1,500 each year to students. The ERF in effect acts as co-signer. For each $1 on deposit in the ERF's loan guarantee fund, the bank will lend $12.50.

More than 3,300 students, interns and residents have borrowed more than $6,000,000 through this fund since it was started last February. Physicians and others have contributed almost $700,000 to the loan guarantee fund, which makes possible these loans.

The guarantee fund is almost exhausted, and more money is needed immediately to keep up the loan program. Eventually it will become self-sustaining as loans are repaid, but right now substantial financial help is needed. Your check to the AMA-ERF, 535 North Dearborn St., Chicago, will help to keep this important program viable. Contributions to the Foundation are tax deductible.

AMA-ERF LOAN PROGRAM

Loans by State
Through August 20, 1962

	Medical School		Hospital	
State or Possession	No.	Dollars Loaned	No.	Dollars Loaned
Alabama	1	$ 1,400	11	$ 13,900
Arizona	1	1,200	6	6,400
Arkansas	30	34,500	2	3,000
California	177	206,900	87	109,300
Canal Zone	—	———	2	2,500
Colorado	66	64,800	23	24,500
Connecticut	8	9,200	9	10,500
Delaware	—	———	—	———
District of Columbia	106	128,300	34	43,100
Florida	55	65,400	34	42,200
Georgia	43	50,000	23	25,900
Hawaii	—	———	3	3,000
Illinois	100	86,900	39	46,600
Indiana	76	87,500	16	18,400
Iowa	60	70,400	11	12,300
Kansas	—	———	6	6,700
Kentucky	22	26,200	4	4,700
Louisiana	40	47,500	21	24,900
Maine	—	———	—	———
Maryland	17	19,500	19	24,900
Massachusetts	9	10,000	22	25,400
Michigan	40	43,300	29	36,500
Minnesota	26	27,400	37	42,800
Mississippi	45	45,000	15	19,600
Missouri	83	99,000	28	33,700
Montana	—	———	—	———
Nebraska	44	49,300	3	4,000
New Hampshire	—	———	3	4,500
New Jersey	11	2,500	4	5,000
New Mexico	—	———	3	4,200
New York	21	25,400	82	98,700
North Carolina	28	34,900	11	14,100
North Dakota	9	9,700	—	———
Ohio	50	52,100	57	67,300
Oklahoma	56	59,200	13	16,900
Oregon	8	7,300	6	7,000
Pennsylvania	34	40,700	54	63,200
Puerto Rico	15	19,300	4	5,300
Rhode Island	—	———	4	5,500
South Carolina	19	23,000	1	1,500
South Dakota	18	21,100	—	———
Tennessee	124	134,100	19	21,900
Texas	95	90,100	44	52,200
Utah	16	16,700	19	22,200
Vermont	10	10,500	4	3,000
Virginia	22	26,300	9	11,700
Washington	2	2,100	13	15,100
West Virginia	23	28,200	5	6,600
Wisconsin	39	48,400	11	14,200

IMS Fall Conference for County Society Officers

About 165 physicians—county medical society presidents, secretaries, deputy councilors, legislative contact men, delegates and alternates, Blue Shield liaison physicians, and committee chairmen, and state society officers and committee chairmen—attended a fall conference on public relations, prepayment and legislative problems at the Savery Hotel, in Des Moines, Friday, October 5, 1962.

The program was tightly packed with well-presented and informative discussions of important issues. Dr. George H. Scanlon, president, and Dr. S. P. Leinbach, chairman of the Board of Trustees of the Iowa Medical Society, opened the program by outlining and commenting briefly upon the present and immediate-future projects of the state organization. They pointed out, among other things, that although medicine achieved a great deal in securing the defeat of the King-Anderson Bill in the 87th Congress, it hasn't yet won the war. County medical organizations and individual physicians, they said, must be called upon, once again, to impress their views upon candidates for the legislature, who—if elected—will be voting on a Kerr-Mills appropriation for Iowa, and they must also be prepared to fight either a resubmitted King-Anderson Bill or some newly devised proposal for financing health care for the aged under Social Security when the 88th Congress convenes next January. Dr. Leinbach also spoke of the potentialities of Blue Shield in the fight against socialized medicine, provided that physicians support it wholeheartedly.

BLUE RIBBON COUNTY SOCIETY PROJECTS

The next segment of the program consisted of reports on the outstanding projects that four county medical societies have conducted. Dr. Walter M. Block, of Cedar Rapids, told of the success the Linn County Medical Society has had with a scheme for explaining the challenges of a career in medicine to junior and senior high school students during the past two summers. Dr. C. N. Hyatt, of Corydon, recounted the steps that the Wayne County Medical Society took in starting a series of paid public-relations ads in local newspapers—a procedure that several other county medical societies in Iowa have since undertaken, with the help of the AMA and the IMS. Dr. A. H. Downing, of Des Moines, spoke about the public forums on medical topics that the Polk County Medical Society has conducted during the past five years, in cooperation with the DES MOINES REGISTER AND TRIBUNE. Dr. John M. Baker, of Mason City, gave the details of the planning done by the Cerro Gordo County Medical Society and the Mason City Junior Chamber of Commerce prior to the highly successful polio-vaccine feedings there several months ago.

PUBLIC RELATIONS AND LEGISLATIVE PLANS

The next three speakers, Mr. Bernard Harrison, director of the AMA Legislative and Socio-Economic Division, Mr. Joe D. Miller, executive director of the American Medical Political Action Committee (AMPAC), and Dr. Lawrence O. Ely, of Des Moines, chairman of the Iowa Physicians Political League (IPPL), talked about the need for political activity—making campaign contributions, in particular—by physicians. Dr. H. E. Wichern, of Des Moines, chairman of the IMS Legislative Committee, and Mr. R. B. Throckmorton, the Society's counsel, enumerated the proposals which organized medicine plans to watch very closely in the 1962 General Assembly of Iowa. Four of them, it is expected that the IMS will support: (1) an appropriation of funds for Kerr-Mills programs in Iowa; (2) a law to assure the confidentiality of medical studies; (3) a radiation-control measure; and (4) the establishment of a composite board of medical and osteopathic licensure. The IMS plans to give careful study to a couple of proposals; these are the proposed nurse practice act and the proposed legalization of professional corporations. The Society expects to watch carefully any attempts to expand the scopes of podiatry and chiropractic.

Mr. Hugh Brenneman, of Lansing, executive director of the Michigan Association of the Professions, discussed the need for such organizations as the one he heads, and recommended the establishment of that sort of group in Iowa. Before leaving town, he was invited to meet with representatives of several professional organizations. No definite action was taken at that gathering, but it is possible that an Iowa group encompassing the attorneys, the architects and the medical and paramedical organizations will shortly be put together.

RELATIONS WITH OSTEOPATHS AND PHARMACISTS

Dr. John M. Rhodes, of Pocahontas, chairman of the IMS Osteopathic Committee, reported on the steps being taken in preparation for the start of case conferences, referrals and other sorts of professional relationships between doctors of medicine and certain of the osteopathic physicians and surgeons. In particular, he pointed out the respon-

sibilities of county medical societies in passing upon the osteopathic physicians and surgeons who seek clearance for such cooperation.

Dr. Christian E. Radcliffe, of Iowa City, chairman of the IMS Judicial Council, was to have spoken on physician-pharmacist relations, but was unable to be in Des Moines on October 5. In his report, which Dr. Leinbach read to the meeting, Dr. Radcliffe said that following meetings between a subcommittee of the Judicial Council and representatives of the pharmaceutical profession, the Council agreed that a revision of the Physician-Pharmacist Code of Understanding may be in order, and that the new agreement should suggest printing the following legend on all prescriptions which are to be filled by druggists: "This prescription may be taken to the pharmacy of your choice." Dr. Radcliffe also reported that the Judicial Council believes each county medical society should investigate any charge that a physician- or clinic-owned pharmacy in its area is exploiting patients or is unfairly concentrating the drug business, and then should take disciplinary action, if any appears indicated.

The luncheon speaker at the Fall Conference for County Medical Society Officers was Mr. Kenneth Haagensen, of Milwaukee, a marketing services and public relations executive for the Allis-Chalmers Company. His topic was "How Do You Expect to Rate If You Don't Communicate?"

HEALTH INSURANCE TOPICS

Mr. Edwin J. Faulkner, of Lincoln, president of the Woodmen Accident and Life Company, spoke on the topic "We Can Meet the Challenge If—." He referred, of course to the ability of the friends of American free enterprise again and again to defeat proposals designed to socialize the practice of medicine and the insurance business. "We can meet the challenge," he declared, "if we will communicate to the electorate the real nature of the implications of these proposals. . . . We must recall that most Americans are not familiar with the basic issue. . . . We must remember that the public suffers from a real euphoria in social security matters, having been assured that all is well, whereas many serious students of the program foresee great disappointments and serious problems in the future."

Dr. Earl C. Lowry, president of Iowa Medical Service, speaking on "The Role of Blue Shield in Prepayment," expressed the belief that the doctors' continuing support of Blue Shield has been responsible for its success, and asserted that the high esteem in which the public holds the "Blue" plans was largely responsible for the defeat of the King-Anderson Bill this year. Mr. Richard Sloan, of Pittsburgh, an administrative assistant on the staff of the Pennsylvania Medical Society, described the surveillance over health-insurance utilization that has been set up in western Pennsylvania by his organization. Of 8,000 cases reviewed since 1959, he said, the review committee found apparent overutilization, to a greater or lesser extent, in 1,500 cases. The program, he feels, places responsibility upon the individual physician, but it is educational rather than punitive. Doctors who have been criticized for overuse of their patients' insurance tend thereafter to avoid questionable practices.

Mr. Charles H. Crownhart, secretary of the State Medical Society of Wisconsin and general manager of Wisconsin Physicians Service (Blue Shield), told of the success that the equivalent of the Iowa "blue chip" program has had in his state. Mr. Joe W. Peel, of Chicago, counsel for the Health Insurance Association of America, enumerated the essential features of the "65" plans recently introduced by the commercial health-insurance underwriters in Connecticut, Massachusetts and New York.

Besides answering the question, "What Is the Function of an Insurance Department?" Mr. John M. Manders, of Des Moines, associate counsel for the Insurance Department of Iowa, called the doctors' attention to the fact that the supervision of insurance companies is in considerable danger of being federalized, and that the consequences of such a change would be a considerable loss of revenue to the state and a loss of local control over an important segment of commerce.

The final speaker, Dr. W. O. Purdy, of Des Moines, medical director of the Equitable Life Insurance Company of Iowa, listed the duties that he and other men in his type of practice regularly carry out. (1) They select and appoint life-insurance examiners. (2) They decide when additional medical data are required from the examiner or from the applicant's personal physician. (3) They appraise the risk that the company would undertake in issuing each policy. (4) They inform the applicant's personal physician about findings made during an insurance examination, if the applicant gives his consent and if it seems likely that the personal physician hasn't made the same discoveries. (5) They conduct research on the extent to which various diseases and impairments affect life expectancy. (6) They act as "plant doctors" for the life insurance company's employees. (7) They act as consultants in the devising of new types of insurance contracts. He also mentioned that certain life insurance companies assist, through magazine advertisements and special publications, with educating the general public on health topics. The medical staffs of those firms, of course, are responsible for the medical accuracy of those materials.

The JOURNAL has the manuscripts from which most of the men spoke at the conference, and it will publish many of them in succeeding issues.

Iowa Chapter of the American Academy of General Practice

Fourteenth Annual Meeting

The Fourteenth Annual Meeting of the Iowa Chapter was held at the Hotel Savery, in Des Moines, on September 12 and 13. The scientific sessions were well attended, and the program covered a wide variety of subjects of interest to all of the members present. The papers presented refreshed their memories, and in some instances introduced them to new ideas that will be useful in their future practice of medicine.

The first day's papers covered headaches, abdomen, backs and knees—all of interest. The presentation on stuttering brought many appreciative comments, since nearly everyone has had to deal with this problem in one or another of his own children. The fact remains that stuttering usually starts in the listener's ear.

The annual business meeting was held following the luncheon on September 12. The business at hand had been facilitated by the pre-meeting preparation of all committee reports. Copies of them were distributed at the time of registration, thus giving everyone an opportunity to review the topics for discussion before the official business meeting began. The slate of officers presented by the Nominating Committee was unanimously elected. The new president-elect is Dr. William A. Castles, of Dallas Center, and the new vice-president is Dr. Lee Rosebrook of Ames. Dr. Arnold Nielsen of Ankeny, was re-elected secretary-treasurer. Two men were elected to three-year terms on the Board of Directors: Dr. Clyde J. Smith, of Gilmore City, and Dr. Keith Wilcox, of Muscatine. Dr. Elmer M. Smith, of Eagle Grove, was re-elected delegate to the AAGP, and Dr. Charles V. Edwards, Jr., of Council Bluffs, was elected alternate delegate, each for a two-year term. At the annual banquet, held on September 12, Dr. V. L. Schlaser presented the gavel to Dr. Eugene Smith, of Waterloo, who will serve as president for the coming year.

Dr. James D. Murphy, of Fort Worth, Texas, president of the American Academy of General Practice, was the banquet speaker, and his talk entitled "The Academy Looks Ahead" was thought-provoking. "Three years ago the Board of Directors of the Academy was given a mandate by the Congress of Delegates," he said, "to take whatever steps necessary to see that the Academy continued to progress. Activities were increased, commissions met more frequently, we liaisoned ourselves almost to death and we overran our budget, but we failed to make the desired progress. Why? One point became obvious. We were like Lord Ronald, who, you will recall, jumped on his horse and rode off in all directions.

"After one year of unrestrained activity and questionable progress, the Board spent hours pinpointing the major problems being faced by the Academy. These are:

1. How can we interest more students in a career in medicine, and in general practice in particular?

2. How can we see that the medical schools graduate an undifferentiated student who has had an adequate exposure to general practice? How can we change the attitude of the deans?

3. What is the minimum basic postgraduate training necessary to produce a good family doctor, and how are these programs to be made available?

4. After such training, how can we make certain that young general practitioners are accorded hospital privileges commensurate with their demonstrated ability?

"Now, I think you will agree that these are the problems, with their many facets, that must be faced squarely and solved by the Academy. The methods used in the past have proved inadequate, and our ranks of potential family physicians are being continually depleted, as more and more students go into specialty training. It's up to you and me to push hard enough and long enough to develop a new momentum that will assure those who follow us of a place in medicine as family doctors. Let's pledge ourselves to *work on every level* to promote and accomplish these newly-stated objectives."

The second day's program at the Fourteenth Annual Meeting was as interesting and informative as the first day's. The lectures were well presented and articulate, bringing ideas to inspire those present to a better practice of medicine. Thirty-four technical exhibitors had very fine displays, and representatives of Blue Cross/Blue Shield and of the Iowa Medical Society were in attendance.

The 1963 Annual Scientific Assembly will be held at the Hotel Savery in Des Moines on September 16 and 17.

Unjustified Restrictions in Hospital Practice

Recently there have been renewed attempts by some specialists to restrict the practice of the non-specialists in hospitals. One of these has been in the obstetrical department, where an effort is being made to rewrite the medical staff by-laws so as to require that the family physician follow restrictive rules in calling consultants, and to specify that the consultants must be "board men."

In the EXPLANATORY NOTE ON THE STANDARD ON CONSULTATION, prepared by the Joint Commission on the Accreditation of Hospitals, the following statement is made: "In general, it is the conscience of the attending physician which will determine whether or not a consultation is needed. A standard which requires consultations in such instances would be for the purpose of controlling those physicians and surgeons who are less than normally conscientious and are willing to subject their patients to risk in order to maintain their own independence of action. It does not appear to be practicable to promulgate such a standard, and it would seem more fitting to leave this to the individual hospital staff."

Provision is made for self-examination and education of the medical staff through well-organized review of work in all departments. If acceptable standards of practice are not being maintained, these should be brought up at regular departmental meetings. Specifically, as concerns the department of obstetrics, the mortality rate and rate of complications should be investigated, and individual cases of possible mismanagement should be brought out.

The second unacceptable proposal is that all consultations be limited to those who have board certification. Again a quotation from the Joint Commission's EXPLANATORY NOTE: "It is not practicable or proper to take the matter of a board certification into consideration. Board certification is no more than a relative indication of proficiency."

In 1961, Dr. Robert A. Kimbrough of the American College of Obstetricians and Gynecologists, told the state officers of the AAGP: "At the request of the American Academy of General Practice, the College has appointed a committee to organize a plan for continuing education of non-specialists. The College stands ready to aid such a program as soon as these joint committees can agree on what is needed and what is desired."

In the JAMA for September 22, 1962, Dr. Keith P. Russell, chairman of the AMA Section on Obstetrics and Gynecology, said, "All physicians, by the Hippocratic oath, must be teachers. . . . Educational responsibilities of the obstetrician-gynecologist also extend toward other groups with which he is associated; this applies particularly to the generalists. Much of the increasing work load of this specialty predicted for the next decade can be adequately and skillfully carried out by the nation's generalists provided the proper educational foundations are established at the medical school and postgraduate levels."

A reasonable conclusion from the above is that the way to reach and maintain high standards of obstetrical practice is through *education*, not through *limitation*.

Postgraduate Courses at S.U.I.

On Friday, November 30, there will be two half-day courses held in the Medical Amphitheater of University Hospitals. The S.U.I. Department of Internal Medicine, the Iowa Heart Association and the Iowa State Department of Health are co-sponsoring the morning session, a cardiac conference on new concepts and therapy in hypertensive disease. Respiratory diseases will be the topic of discussion at the afternoon conference sponsored by the Department of Internal Medicine, the Iowa Thoracic Society and the Iowa Tuberculosis and Health Association. There is no registration fee for the morning session, but all physicians attending the course are requested to register. No registration fee is required of members of the Iowa Thoracic Society for the afternoon conference; there is a fee of $5.00 for non-members.

The following programs have been arranged for the conferences:

CARDIAC CONFERENCE—November 30

8:15 Registration
8:50 Welcome—Dean Robert C. Hardin
9:00 Workup of the Hypertensive Patient
Mark L. Armstrong, M.D., S.U.I.
9:15 Salt, Fat and Hypertension
Lewis K. Dahl, M.D., Head of Research Medical Service, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, N. Y.
10:15 Aldosterone and Human Hypertension
John H. Laragh, M.D., Associate Professor of Clinical Medicine, Presbyterian Hospital, Columbia University College of Physicians and Surgeons, New York
11:00 Hyperglycemic Response to Thiazides
William R. Wilson, M.D., S.U.I.
11:15 Methyldopa, a New Hypotensive Drug
Walter M. Kirkendall, M.D., S.U.I.
11:30 Problems of the Hypertensive and His Physician
A panel consisting of the five participating physicians
12:30 Luncheon

RESPIRATORY DISEASES—November 30

Moderator: George N. Bedell, M.D., President, Iowa Thoracic Society

1:00 Registration
1:20 Introductory Remarks
William B. Bean, M.D., S.U.I.

1:30 The Value of Skin Hypersensitivity in the Diagnosis of Pulmonary Disease
Paul M. Seebohm, M.D., S.U.I.
1:50 What the Chest Physician Should Know
Arthur M. Olsen, M.D., Consultant in Medicine, Mayo Clinic, Rochester
2:15 Research Supported by Iowa Thoracic Society and Iowa Tuberculosis and Health Association:
Histaminopexic Studies
Curtis C. Drevets, M.D., S.U.I.
Allergy and Resistance to Infection
Wayburn S. Jeter, Ph.D., S.U.I.
Delayed Hypersensitivity and Mycotic Skin Testing Antigens
John Cazin, Jr., Ph.D., S.U.I.
Influenza-Staphylococcal Infections of Mice
Ian M. Smith, M.D., S.U.I.
Intrathoracic Blood Volume in Dogs
John W. Eckstein, M.D., S.U.I.
Oxygen Therapy in Emphysema
George N. Bedell, M.D., S.U.I.
2:45 Dyspnea
Arthur M. Olsen, M.D.
3:25 The Natural History of Tuberculosis in Relation to Eradication Programs
William W. Stead, M.D., Professor of Medicine, Marquette University, Milwaukee City Hospital
4:15 Chest and Infectious Disease Clinic
A patient with a diagnostic problem will be presented and discussed by Drs. Bedell, Drevets, Galbraith, Keller, Olsen, Seebohm, Stead and Smith

A postgraduate conference on pediatric surgical problems will be held on December 4 and 5. The conference, sponsored by the S.U.I. Department of Surgery, will begin on the evening of December 4, with registration and dinner followed by presentations and discussion of cases for operative clinics and demonstrations which will be held the next morning. Closed circuit television will be used in the demonstrations.

There will be a $10.00 registration fee to help defray the basic costs of this program. Luncheon tickets are included in the fee. AAGP Category I credit will be given. Advance registration is requested to assure adequate housing and parking accommodations.

The conference program will be as follows:

PEDIATRIC SURGICAL PROBLEMS

Tuesday Evening, December 4

6:00 Registration—University Athletic Club
7:00 Dinner—Dutch Treat
8:00 Presentations and discussion of cases for the operative clinics and demonstrations on Wednesday

Wednesday, December 5

7:30 Operative Clinic—Sixth Floor Operating Rooms, University Hospital
John A. Gius, M.D., S.U.I., in charge. (There will be operations demonstrating pediatric problems in abdominal, chest, thoracic, urologic, and reconstructive surgical fields.)
Demonstration and Follow-up Clinics—Fifth Floor Surgical Library
Acute Trauma in Childhood
S. E. Ziffren, M.D., S.U.I.
L. C. Faber, M.D., S.U.I.
10:00 Medical Amphitheater (Room E-331)
Moderator—R. T. Tidrick, M.D., S.U.I.
Recurrent Acute Intussusception
R. T. Soper, M.D., S.U.I.
Congenital Diaphragmatic Hernia
C. D. Benson, M.D., Clinical Associate Professor of Surgery, Wayne State University Medical School and Surgeon-in-Chief, Children's Hospital of Michigan, Detroit
Hypertrophic Pyloric Stenosis
W. J. Pollock, M.D., S.U.I.
Histoplasmosis—A Surgical Problem Too
J. L. Ehrenhaft, M.D., S.U.I.
Acute Appendicitis in Infancy and Childhood—Still an Unresolved Problem
R. D. Liechty, M.D., S.U.I.
Indications for Urologic Investigations in Children
D. A. Culp, M.D., S.U.I.
Discussion
12:30 Luncheon—Quadrangle Dining Room
1:30 Panel Discussion—Problem cases submitted by members of the audience
C. D. Benson, M.D., Moderator
D. Dunphy, M.D., S.U.I.
M. S. Lawrence, M.D., S.U.I.
R. T. Soper, M.D.
2:30 Panel Discussion—Pre- and Post-operative care, with emphasis on fluid and electrolyte management
S. E. Ziffren, M.D., Moderator
C. D. Benson, M.D.
W. K. Hamilton, M.D., S.U.I.
E. E. Mason, M.D., S.U.I.
J. C. Taylor, M.D., S.U.I.
4:00 CPC—Presentation of a pediatric-surgical problem
C. D. Benson. M.D.. Discussant

Registrants are invited to participate in the panel discussion of problem cases at 1:30, and it is suggested that for interest and aid in presentation, applicable radiographs, slides or other visual aids be used, if available. Guest moderator of this session, Dr. Clifford D. Benson, is one of the country's outstanding pediatric surgeons.

Registrations and requests for additional information may be handled by writing to John A. Gius, M.D., Director, Postgraduate Medical Studies, Office of the Dean, College of Medicine, Iowa City. Checks for fees should be made payable to the State University of Iowa and mailed to Dr. Gius.

Help your central office to maintain an accurate mailing list. Send your change of address promptly to the Journal, 529-36th Street, Des Moines 12, Iowa.

THE DOCTOR'S BUSINESS

How Much Life Insurance?

HOWARD D. BAKER
Waterloo

Very frequently a client asks us: "How much life insurance should I have?" The client expects an answer in terms of "averages" or some "rule of thumb."

True, many such "averages" and "rules of thumb" are in existence today. Some say that a man should spend approximately 10 per cent of his annual income for life insurance. How much insurance will that buy? We all know that $1,000 may pay the annual premium on a $15,000 retirement-income policy, or it may pay the annual premium on $170,000 of decreasing-term insurance. When a choice is made, the age of the insured and the needs he has for life insurance should be the deciding factors.

It is fallacious to assume that everyone can afford to spend 10 per cent of his annual income for insurance—no more and no less—just as it is a mistake to assume that everyone needs to do so.

A second erroneous approach is to try to fix the dollar amount of life insurance according to income. Some people advocate an amount equalling four or five times the individual's annual income. There are many pitfalls in this approach. Using an exaggerated example, we might point out that such a formula would dictate $300,000 of insurance for a doctor, 55 years of age and single, who has a net income of $75,000 per year and assets worth $450,000. At the other extreme, it would require $80,000 of insurance coverage for a 33-year-old doctor who earns $20,000 per year, has a 30-year-old wife and four young children, has debts totaling $25,000, and has no income-producing assets. In neither of these cases would the doctor have the proper amount of insurance in his portfolio.

What, then, is the proper answer to the question: "How much life insurance?" In our opinion, there can be no stock answer, and no application of "guides" or "rules of thumb." Every such question must be approached from an individual standpoint, and answered only after a thorough analysis of the man's needs, present insurance, other assets, and finally his ability to pay the premiums incident to such a program.

Approaching an individual and personal problem on the basis of an "average" makes us think of the man whose head is in an oven and whose feet are in a freezer. *On the average,* one might suppose, he feels just right. If we were to follow such an approach to our clients' insurance problems, only a scattered handful would have the *right* amount of insurance to afford them the protection they need and desire, but each of them would have an *average* amount.

PROCEDURES TO BE FOLLOWED

Following are some basic concepts that we advocate in planning an insurance program:

1. Using a realistic approach, and realizing that insurance is a disaster type of protection, write down exactly what you want to provide for your family if you die. How much will be needed to pay off your debts, educate your children, probate and administer your estate, and pay the expenses incident to your death? How much will be needed to pay your survivors the monthly income that you think they will need?

2. What will your present resources, including your present insurance and all other assets, do toward fulfilling those needs?

3. What additional insurance must you have to satisfy the remainder of your needs? In answering this question, your insurance adviser will recommend various term contracts to meet the temporary ones of your needs. Your permanent needs probably can best be satisfied by means of low-cost permanent contracts.

4. Finally, is the cost of the additional insurance reasonable and within your budget? If not, your needs must be trimmed, and/or more term insurance must be used to meet them.

In taking this approach, we are not considering

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

our client as an "average" or a "statistic." We are considering him as an individual.

SUMMARY

In summary, to assure an adequate life insurance program at a realistic cost, we recommend that you (1) seek an impartial adviser, (2) take an individual approach, (3) be realistic in weighing your needs, and finally (4) buy insurance *for protection,* not for investment purposes.

An Invitation to Los Angeles

GEORGE M. FISTER, M.D.
AMA President

The year 1962 has been a busy one for your American Medical Association. Every physician knows that the AMA was forced to devote much time and energy to non-scientific affairs during the year.

But while many members of the American Medical Association were busy with the winning of another round in the long fight to sustain free medicine in America, others were also busy sustaining the scientific work of the AMA and pushing rapidly ahead with programs aimed at helping you in your practice.

One of the major scientific undertakings of the AMA each year is the winter Clinical Meeting. The 1962 Clinical Meeting will be held Nov. 25-28 at Los Angeles.

The members of the Council on Scientific Assembly, the committees in charge of plans and program and a host of other physicians have been working throughout the year to insure a well balanced and important scientific program for the 1962 meeting. They have succeeded admirably.

The physician in practice will find much of interest and benefit in the scientific papers, symposia, panels, films and exhibits in three and one-half days at the Shrine Auditorium at Los Angeles.

The program has been published in its entirety in the October 27 issue of the JOURNAL OF THE AMA. You will find strong emphasis on those health problems that confront virtually all of us in day-to-day practice—cancer, heart disease, virus diseases and many others.

The program on heart disease is a particularly strong one, including several of America's leading specialists. Papers on cancer will fill two complete units of the program, and others on this theme will be presented in many of the specialty areas. Viral hepatitis, a growing disease that is confronting us more and more often in practice, will be given thorough study.

Something new of a scientific nature will be offered in Los Angeles: a complete half-day program on air pollution. There is much yet to be learned about the effect of polluted air on man, but there also is much that is known. Most of us are from time to time required to treat conditions that might have stemmed from some pollutant in the atmosphere around us. The latest knowledge in this growing field of medicine will be available to physicians attending the meeting.

Join your colleagues at Los Angeles in November. You will find much knowledge that will be of inestimable value to you in the years to come.

Social Security Is Once Again in the Red

The Treasury Department's preliminary figures for the fiscal year which ended on June 30, 1962, show that the Social Security System lost $1,248,000,000. The Old Age and Survivors Insurance receipts reached a new high of $12,022,000,000, but rapidly rising expenditures rose to $13,270,000,000.

According to news sources, the Treasury Department does not expect to get the system into the black next year. It estimates receipts at $14,120,000,000, and expenditures at $14,171,000,000.

Despite increases in Social Security tax rates and in the maximum amount of an employee or self-employed person's income on which Social Security tax is payable, the Social Security System lost money in 1957, 1958 and 1959.

Critics of the Social Security approach to health care for the aged have pointed out repeatedly that the addition of a health-care program, with its unpredictable costs, would jeopardize the entire Social Security structure!

New PKU Motion Picture

A new medical motion picture "PKU Mental Deficiency Can Be Prevented" was shown for the first time to physicians at a special premiere at the University of Wisconsin on September 27. The film was produced under the supervision of Dr. Harry A. Waisman of the University of Wisconsin Medical School's Department of Pediatrics, and it presents the case histories of two siblings, both with phenylketonuria (PKU)—an inborn metabolic error, which can lead to severe and permanent mental retardation. One child was treated from soon after birth and the older child was diganosed too late.

The film reviews the biochemistry, genetics, symptoms, diagnosis and management of PKU. A number of simple diagnostic tests are described by Dr. Waisman. Testing for PKU, the film stresses, must become as routine and as standard for general practitioners and pediatricians as shots for DPT, polio, and smallpox.

The 14½ minute, sound, black and white motion picture is available for showings, without charge, to medical groups and organizations. Requests for prints should be sent to the Medical Film Department, Ames Company, Inc., Elkhart, Indiana.

Iowa Association of Medical Assistants

Making Appointments—Part II

Last month we discussed the need for planning of time—scheduling appointments to meet the needs of the doctor and his patients. This month we shall discuss the mechanics of making appointments.

We shall assume that you know that you can book appointments between hours which have been decided upon by your employer. These hours are usually posted on the entrance door, or some other place where the public can see them. The next requisite is an appointment book. There are dozens on the shelves of your favorite office supply store, and you will probably find one which suits your particular needs. First, it should bear the date—year, month and day—on each page. Next, the day should be divided into quarter-hours, and each space should be large enough to hold the name of the patient and a notation regarding the service for which he is coming.

It is essential that the appointment book be accessible to the doctor and to his assistants, BUT it should never be placed where the public can read it. The reading of appointments by anyone other than the doctor and his staff constitutes an invasion of privacy.

Since the greater share of appointments will be made by telephone, it is important that you express the same pleasantness when using the telephone as you do when meeting the patient face to face. Your attitude may be as important to the patient as the actual making of the appointment.

The main points to remember in making appointments are:

1. Be sure you have the name correctly. Nothing is more important to any individual than his name. If the appointment is made by telephone and you do not understand the pronunciation of the name, or the name is not familiar to you, do not be afraid to ask the patient to spell it for you. Enter the full name, and if the patient is new ask for his address and telephone number for your record.

2. Make the appointment for the next available hour. Few patients call for appointments in the future; if the problem is not urgent and the schedule is filled for a day or two, you should suggest the first vacancy. If the patient is apprehensive about making an appointment, needless delay may cause him to lose courage or go elsewhere.

3. Be sure that the date and time are distinctly understood.

Repeating the day, the date and the time will help to impress it upon his memory if the appointment is made by telephone. If the patient is in the office, a reminder card can be given to him. Or, you might note his telephone number beside the appointment notation, and call him on that day to remind him of the time.

4. Allow sufficient time for the appointment. Most patients will give you some hint of the problem either by self-diagnosis or by mentioning their symptoms. It is not always possible to gauge the time needed for an appointment because patients have been known to tell the assistant one thing and present an entirely different story to the doctor. Or, they make an appointment for one member of the family and bring along two others to be seen in the time allotted to one patient.

5. Try to remember the time or day a patient prefers.

A housewife or mother has responsibilities which are as important to her as working hours are to a regularly employed person. A free morning, or time after school when a baby sitter is not a problem, or a half-day from work may be conveniences that patients will appreciate your remembering. They will also appreciate your offering a choice of days or times, if your schedule will permit it.

6. If you have to refuse a requested time, explain why and suggest another time of mutual convenience.

7. If it is necessary for a patient to cancel an appointment, suggest another time immediately, and make the proper entry and correction in the appointment book.

8. If an emergency arises and you have to change appointments, be sure to explain the reason for the change—that the doctor was called to the delivery room, or for emergency surgery, etc.—without identifying the person or persons involved in the emergency.

9. Some detail men and salesmen prefer to call by appointment.

These men are aware that the doctor has a busy schedule and they will be glad to have a few minutes saved for them. They do not, as a general rule, break appointments or overstay the allotted time.

10. Professional callers should always be received courteously and promptly.

These visits are brief because such people have heavy schedules of their own to maintain.

In addition to regular appointments there will be civic leaders, solicitors, ministers, insurance

men and others calling daily. Your doctor will inform you of his policy regarding such callers. If he has not done so, it would be well for you to check with him in advance on procedures to follow in such instances. Each caller should be treated with courtesy whether he comes in person or telephones. The same rules of tact, courtesy and consideration apply to *every* visitor to a doctor's office. Disgruntled callers do not create good medical public relations. Mind your manners—your slip may be showing, verbally speaking.

—HELEN G. HUGHES

Nominations for the Bierring and Brophy Awards

Nominations for the Walter L. Bierring and Frances Brophy awards for outstanding service to tuberculosis control in Iowa must be submitted by February 15, 1963. The Bierring Award can be made only to an individual, but is open to those who earn their living in tuberculosis-control work. Previous honorees include: Leon J. Galinsky, M.D., Des Moines, 1955; Ralph E. Smiley, M.D., Mason City, 1956; William M. Spear, M.D., Oakdale, 1957; Charles E. Gray, M.D., Iowa City, 1958; Cora Johansen, R.N., Burlington, 1959; George W. Smiley, M.D., Ottumwa, 1960; and Chester I. Miller, M.D., Iowa City, 1961.

The Brophy Award is presented in recognition of volunteer service, and groups as well as individuals can be nominated for it. It has been given to: Mrs. Gailen Thomas, Dubuque, 1955; Edna Barnes, Greenfield, 1956; Henry Cowen, Des Moines, 1957; Mrs. George M. Pedersen, Storm Lake, 1958; Elmer E. Bloom, Sr., Muscatine, 1959; Claude W. Sankey, Clarion, 1960; and Charles Moore, Rockwell City, 1961.

A brochure outlining the qualifications to be considered in making the awards can be secured from E. B. Floersch, M.D., president, Iowa Tuberculosis and Health Association, in Council Bluffs, or from the headquarters of the organization at 1818 High Street, Des Moines 14. Persons whose names have been previously submitted may be renominated for the 1963 Awards, but it will be necessary to provide the required information about them once more.

More Illegal Lobbying by Administration Personnel

Representative Melvin R. Laird (R., Wisc.) has charged H.E.W. Secretary Anthony J. Celebrezze with wasteful spending of tax funds in seeking approval by the House of Representatives of the $2.3 billion college-aid bill. Subsequently, on September 20 the bill was defeated by a roll call vote.

Mr. Celebrezze had sent each of the 437 members of the House of Representatives a 520-word telegram expressing the "ardent hope" that they would support the bill. Mr. Laird had found that the cost of those telegrams must have been $12,847, and asked the Justice Department to investigate. He said the H.E.W. Secretary had violated a federal ban against federal employees' lobbying with appropriated funds.

This was the same charge made by the AMA when former H.E.W. Secretary Ribicoff issued a 159-page booklet containing an introduction which urged enactment of the Administration's aged-care bill.

Mr. Celebrezze replied that the cost of the telegrams had been only $3,562, and that he did not know that the telegrams were to be sent. He said he had issued instructions that the procedure was not to be repeated. At the same time, he said he would take full responsibility for the action of his staff.

YOUTH

You see youth as a joyous thing
About which love and laughter cling;
You see youth as a joyous elf
Who sings sweet songs to please himself.
You see his laughing, sparkling eyes
To take earth's wonders with surprise.
You think him free from cares and woes.
And naught of fears you think he knows;
You see him tall, naively bold,
You glimpse these things, for you are old.

But I, I see him otherwise—
An unknown fear within his eyes
He works and plays, and never knows
Where he is called or why he goes.
Each youth sustains within his breast
A vague and infinite unrest.
He goes about in still alarm,
With shrouded future at his arm
With longings that can find no tongue.
I see him thus, for I am young.

—*A High School Student*
(JOURNAL OF THE AMERICAN MEDICAL WOMEN'S ASSOCIATION, **17**:731, (Sept.) 1962)

STATE DEPARTMENT OF HEALTH

Edward D. Zimmer
COMMISSIONER

Cluster Outbreak of Diphtheria

Iowa
September, 1962

That diphtheria can occur in Iowa at the present time has just been demonstrated by the appearance of a cluster of related cases in one small residential area in Sioux City. The index case and five others occurred in one family. The remaining six cases were in three other families who lived in the immediate district or whose children were school contacts of the original case. The original case was first seen by a physician September 17, and the last case had its onset on either September 24 or 25. Now, with more than a two-week interval since the last case in Sioux City, we feel the outbreak is well controlled.

One additional case of diphtheria was reported from Monona County on September 29. We can find no relation between this case and those at Sioux City about 50 miles away.

Although 25 per cent of diphtheria cases reported in the last year or two have been in persons over 16 years of age, all 13 cases just referred to have been in children 13 years of age or under.

All grades in the two Sioux City Schools that the diphtheria patients had been attending were cultured. Positive cultures from those two schools, plus those in family members or persons closely associated with the patients, totaled about 50. Two additional schools, in different areas of Sioux City, were cultured to ascertain whether the infection had spread from the area of its original appearance to other parts of Sioux City. Positive cultures found in those two schools did not indicate that such a spread had occurred. In one school only one positive culture, a nasal one, was obtained.

The diphtheria organism in this instance happened to find a pocket of families with fairly low immunization levels. The same thing could happen anywhere in the state of Iowa, in any city or any county. We believe that Sioux City's immunization levels for school and pre-school youngsters are higher than would be found in many other areas of the state. A recent survey has shown that 91 per cent of the public school and 78 per cent of the parochial school youngsters there have been immunized against diphtheria.

Prompt recognition of the first case, together with the city's decision to act quickly, have probably been the greatest factors in controlling the spread of the infection. Although the Sioux City Health Department carried the brunt of the work, it did call for and receive the help of the State Department of Health, including the State Laboratories at Iowa City. The State Department of Health in turn asked for consultants from the U. S. Public Health Service Communicable Disease Center. Cooperation in controlling the problem was evident everywhere. The Parks Commission of Sioux City, as well as other city commissions and services, lent personnel as requested by the local health department. On a state level, any services that might be made available were available. The Highway Patrol, for example, relayed an emergency shipment of laboratory materials from Iowa City to Sioux City when fog grounded the air line services between the two towns.

Diphtheria can occur and will continue to occur in Iowa. We hope that by maintaining high immunization levels, we can keep the numbers of cases to a minimum.

BE WISE—IMMUNIZE

School Health Problems of Eighty Years Ago

WAUBEEK, LINN COUNTY
November 9, 1881

TO THE STATE BOARD OF HEALTH,
DES MOINES:

GENTLEMEN: We were appointed by the Independent School District of Waubeek a committee to confer with you in regard to holding a winter term of school. This action was based on the following facts:

Waubeek is a small town of 300 inhabitants. Two years ago last August several deaths occurred here from diphtheria. At that time many of the inhabitants believed it not contagious, and, of course, pursued no system of disinfection. After the disease had subsided the winter school commenced, and it broke out again in school and several more deaths occurred. We have three terms of school each year, and every term but one since the first outbreak, it has invariably appeared

shortly after the commencement or during each term. Since the last week in June twelve deaths have occurred in Waubeek and vicinity. Our schoolhouse was painted inside and whitewashed before the fall term commenced. It is built of brick; two stories. The space between the lower ceiling and upper floor is filled with sawdust. The floors are out of repair and filled with filth. Under the floor is a space, four feet high, unoccupied.

Will you be so kind as to answer the following questions and make such suggestions as you choose:

1. Would it be prudent, in view of the above facts, to convene our schools in winter session?
2. Ought the sawdust to be removed from the house; and, if so, what material should replace it to deaden the sound?
3. How should we disinfect the house to destroy the germs of diphtheria?
4. Is it probable that diphtheria originated in the schoolhouse this fall, or was it brought there from infected dwellings?

An early reply is requested as we want to report on the 14th, inst.

Yours, etc.,

(Signed) H. S. BISHOP, JOHN PENLY,
E. A. WARNER
Committee Per H. S. B.

IOWA STATE BOARD OF HEALTH
OFFICE OF THE SECRETARY, DES MOINES
NOVEMBER 8, 1881

MESSRS. BISHOP, PENLY AND WARNER,
COMMITTEE, WAUBEEK, LINN COUNTY,
IOWA:

GENTLEMEN: Your kind favor of the 5th inst. came duly to hand. Diphtheria is undoubtedly contagious, and as much care should be taken to avoid spreading the contagion as in a case of smallpox. Unfortunately, we have for diphtheria no such certain preventive as vaccination for smallpox, and we are left to depend upon such means as isolation of the patient (as far as possible), and the destruction or rapid disinfection of all the usual carriers of contagion, such as rags and clothing, the discharges of the body, etc. Everywhere diphtheria increases upon the opening of the public schools in the autumn. It does not, however, originate in the schoolhouses, but in families, the schoolhouse being only the means of dissemination, and very thoroughly it does its work.

No children should be allowed to attend school from any family having a case of diphtheria, not only during the existence of the disease, but for a further period, say a month, during which there has been a thorough cleaning and disinfection of the household, under the supervision (if possible) of an intelligent physician.

Of the schoolhouse, nothing appears wrong, but the filthy floors and the sawdust. The filthy floors should be removed and replaced with new ones. The sawdust should be replaced with what is called "pugging." Cleats are nailed along the joists a little below their middle; upon them boards are placed so as to make a kind of loosely laid floor; over this is to be poured fluid cement or plaster, so as to form a layer of one or two inches in thickness. This will effectually deaden sound, and by rendering the floor impervious to air, will make the room above warmer and hence more comfortable for the children.

1. After the above changes it would be prudent to open the school.
2. This question is already answered.
3. There are probably no germs of diphtheria in the schoolroom; they are in the children.
4. Diphtheria always originates in dwellings, the schoolhouse being the focus whence it is spread among the community.

Yours truly,
R. J. FARQUHARSON, *Secretary*

DIPHTHERIA CONTROL BEGAN 13 YEARS LATER

Diphtheria control began with the use of diphtheria antitoxin, first for therapy and then for prophylaxis against the infection in the close contacts of the diphtheria patients. In 1894 Dr. Walter L. Bierring[1, 2] brought diphtheria antitoxin to Iowa from the Pasteur Institute at Paris. This material, used by Dr. Cochran at Iowa City in October, 1894, was the first used in Iowa. Shortly thereafter, in the winter of 1894-1895, Dr. Bierring prepared diphtheria antitoxin at the University of Iowa. This antitoxin, used for about 300 diphtheria cases and contacts, was the first in the United States prepared west of New York City. One of these vials of antitoxin has been preserved, and it is now in the State Historical Museum, in Des Moines. It was presented by J. A. Pringle, M.D., of Bagley, Iowa. Diphtheria antitoxin is a passive type of protection against the disease. Active immunization for diphtheria, using toxin-antitoxin, and later toxoids, followed.

The two letters copied here are from the Iowa State Board of Health's Annual Report for 1883. We cannot explain the variation in dates on the two letters. Neither do we know what was done at the Waubeek School at that time to control diphtheria. The Department of Public Instruction tells us that the school, caught up in the state's reorganization program, was closed in 1954. The Waubeek youngsters now go by bus to school at Central City.

REFERENCES

1. Bierring, Walter L., ed.: One Hundred Years of Iowa Medicine, Iowa City, The Athens Press, 1950.
2. Bierring, Walter L.: Modern Treatment of Diphtheria—Transcript of Iowa State Medical Society. **13**:54-61, 1895, Creston, Iowa.

Vaccinia Variola Fluorescein Conjugate Now Available in Iowa

The State Hygienic Laboratories, at Iowa City, recently received from the USPHS Communicable Disease Center a small supply of rabbit immune vaccinia serum conjugated with fluorescein isothiocyanate. Although the fluorescent antibody technic is only experimental in the laboratory diagnosis of smallpox, it does provide positive presumptive evidence of that disease. Material from this particular batch of serum, as a matter of fact, gave positive tests on vesicular fluid in the much publicized case of a 14-year-old boy in Toronto. He is the youngster who had traveled with his parents from South America and who, it was feared, might have exposed considerable numbers of people to the disease during a stop in New York. The diagnosis of smallpox was made when he arrived in Toronto.

About once a year, usually in the spring, physicians report cases of suspected smallpox to the State Department of Health. The new fluorescent antibody technic will be of great aid in helping to establish the true diagnosis in such cases. Physicians who may have cases suspected of being smallpox should report them immediately to the State Department of Health, as usual. The Department will continue to help them by making local investigations and by using the new test materials.

New Small Plant Occupational Health Guide Available

The greatest need in the occupational health field is acknowledged by many to be the provision of occupational health services to workers in plants with fewer than 500 employees. The Council on Occupational Health of the American Medical Association has prepared a guide to help the physician advise management and to help him participate in the organization and operation of a small plant occupational health program.

The guide entitled "Guide to Small Plant Occupational Health Programs," published in the October, 1962, issue of the ARCHIVES OF ENVIRONMENTAL HEALTH, deals with the following areas:

1) Relationship between the physician and management
2) Ethical Considerations
3) Costs
4) Activities, including the following:
   a) Maintenance of a healthful environment
   b) Health examinations
   c) Diagnosis and treatment
   d) Immunization programs
   e) Health education and counseling
   f) Medical records
5) Staffing and organization
6) Facilities and equipment

A sugugested reading list is included.

The guide should be of great help to physicians and to representatives of management in the development of sound occupational health programs. Single copies of the guide are available without charge from the Department of Occupational Health, American Medical Association, 535 N. Dearborn Street, Chicago 10, Illinois.

Morbidity Report for Month of September, 1962

Diseases	1962 Sept.	1962 Aug.	1961 Sept.	Most Cases Reported From These Counties
Diphtheria	11	0	1	Woodbury
Scarlet fever	116	77	95	Jefferson, Johnson, Polk
Typhoid fever	1	0	1	Butler
Smallpox	0	0	0	
Measles	51	48	23	Buena Vista, Des Moines, Linn
Whooping cough	8	3	4	Cerro Gordo, Polk, Scott
Brucellosis	5	10	11	Polk
Chickenpox	22	13	28	Dubuque, Linn
Meningococcic meningitis	1	0	0	Carroll
Mumps	52	78	35	Clay, Scott
Poliomyelitis	0	0	4	
Infectious hepatitis	54	25	139	Polk, Scott, Woodbury
Rabies in animals	21	19	32	Boone, Hamilton, Johnson, Polk, Story
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	39	32	24	For the state
Syphilis	80	87	109	For the state
Gonorrhea	117	103	156	For the state
Histoplasmosis	3	0	4	Cerro Gordo, Fremont, Taylor
Food intoxication	0	4	0	
Meningitis (type unspecified)	0	0	34	
Diphtheria carrier	3	0	0	Woodbury
Aseptic meningitis	1	1	13	Cerro Gordo
Salmonellosis	45	2	1	Cerro Gordo, Marshall
Tetanus	0	1	0	
Chancroid	0	0	0	
Encephalitis (type unspecified)	0	0	1	
H. influenzal meningitis	1	0	0	Buena Vista
Amebiasis	3	0	3	Boone
Shigellosis	0	0	3	
Influenza	0	3	10	

Latest Food Fad Is Wasted Effort

Scientific reports linking cholesterol and heart attacks have touched off a new food fad among do-it-yourself Americans. But dieters who believe they can cut down their blood cholesterol without medical supervision are in for a rude awakening. It can't be done. It could even be dangerous to try.

There are several reasons why. For one, an individual cannot know how much cholesterol his blood contains until this is determined by laboratory tests. By the same token, he cannot know whether any diet changes have raised or lowered his blood cholesterol level unless it is scientifically measured. In the second place, a person's entire food intake must be precisely regulated to lower blood cholesterol. Willy-nilly substitution of a few food items without over-all control of the diet accomplishes little if anything in reducing cholesterol. What is more important, the elimination of certain foods of proved nutritional value could be detrimental to health.

Success in reducing blood cholesterol by dietary regulation so far has been achieved only in strictly controlled experimental groups, and use of this method remains largely experimental. The carefully calculated diets used in medical research to lower cholesterol actually are not yet of practical importance to the general public.

There have been few investigations on the effect of different types of fat in the normal diet over a long period of time. For this reason, it is not known what type of fat, if any, may be beneficial in preventing heart disease, nor is it known that certain fats are harmful. Moreover, it has not been determined whether a significant change in cholesterol levels can be obtained in the American population by dietary means.

Though much remains to be learned about cholesterol and other aspects of nutrition, scientists do know that the American diet provides all the nutrients essential to health and that a varied diet is the best way of maintaining a high level of health. The virtual absence of dietary deficiency diseases in this country attests to this fact. The American diet did not happen by accident. It resulted from much accumulated research and experience. Any changes in a diet of such proved worth must await much more study and experience.

It is for these reasons that neither the Food and Nutrition Board of the National Research Council nor the AMA Council on Foods and Nutrition has recognized the need for modification of dietary fat for the general public.

For good nutrition, the AMA council recommends a well-balanced diet chosen from these four basic food groups:

The Milk Group—milk, cheese, ice cream

The Meat Group—beef, veal, lamb, pork, poultry, eggs, and fish

The Vegetable-Fruit Group—fruits and vegetables rich in vitamins A and C

The Bread-Cereal Group—whole grain, enriched or restored.

Butter, margarine, fats or oils also are needed.

Even those on weight-reduction regimens need food from all these groups.

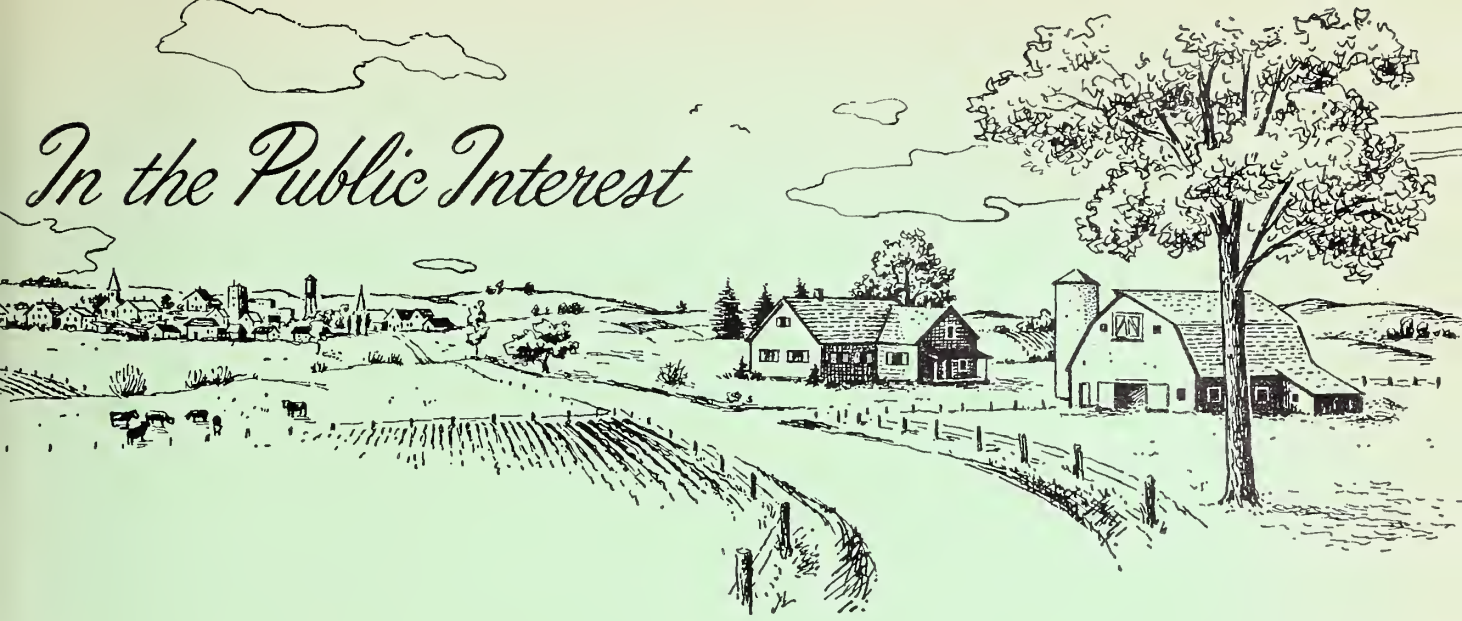
Although some day science may come up with a diet that can prevent heart disease, such a development appears to be well into the future. It probably would take a generation to prove whether any diet can reduce deaths due to heart or blood vessel disease. To test such a theory adequately requires a large-scale, long-term study, Surgeon General Luther L. Terry said recently. Since scientists do not know whether such a mass study of diet modification could be carried out, he said, the essential first step is to find out. The surgeon general announced that five medical centers would begin a joint effort this year to seek the answer. This preliminary study alone is expected to take two years.

In the meantime, advancing knowledge may reveal other factors of possibly more importance than cholesterol in heart disease. For example, the effect of various kinds and amounts of carbohydrates, such as sugars and starches, is being investigated, and there is some evidence they may be a factor in this disease process. At the same time, researchers are seeking other ways to lower cholesterol. Some experts believe drugs will eventually prove to be the preferred method.

It should also be remembered that an elevated blood cholesterol level is only one of the factors implicated in heart disease. Other important factors are heredity, high blood pressure, stress, and smoking.

The anti-fat, anti-cholesterol fad is not just foolish and futile, however. It also carries some risk. When certain foods are dropped from the diet, they must be replaced by foods containing the same nutrients, or the lost nutrients must be made up with additional foods, to achieve adequate nourishment. This requires, among other things, a precise knowledge of the nutritional content of specific quantities of a whole range of food products. And this is where the danger arises. Without this knowledge, the average person is unable to replace the nutrients he loses when he decides to stop eating certain foods, and thus runs the risk of shorting his body of some essential nutrients.

The current concern about diet reflects a healthy interest on the part of the public. This interest should be directed away from hopeless pursuits to a worthwhile goal that can be attained by most individuals—the maintenance of normal weight. Overweight plays the villain in many diseases, and one can avoid overweight by not eating more calories than his body needs.



The Physicians of Iowa Are Urged to Utilize The Newly Adopted Self-Employed Individuals' Retirement Act

After 10 years of effort by various self-employed groups, H.R. 10, the Self-Employed Individuals' Retirement Act of 1962, is now law. Its purpose is to help professional people, small businessmen and other sole proprietors to set up tax-deferred retirement plans for themselves and their employees.

H.R. 10 falls considerably short of permitting self-employed people the privileges that the major employees of corporations have long enjoyed, as regards postponement of taxes on money set aside for their retirement, but it is to be hoped that doctors, lawyers and other professional people will be content with it, and that they will not press for the enactment of an Iowa law permitting them to form professional corporations. Last May, in the expectation that H.R. 10 would pass Congress more or less unamended, the House of Delegates of the Iowa Medical Society decided not to support the professional corporations act that had been proposed for this state. Though the House of Delegates recognized that doctors and other self-employed persons were at a serious tax disadvantage in their attempts to accumulate funds on which to support themselves and their wives in their declining years, it felt that such legislation might compromise the principle, well established in the Iowa courts, that the learned professions may be practiced only by individuals, and not by corporations in this state. The IMS holds to the position it took last spring.

The new measure is certainly not to be regarded as a special favor granted to doctors and other self-employed persons. It was intended to eliminate a discrimination that has long existed in favor of those employed by corporations, and to the detriment of the self-employed.

MAJOR PROVISIONS OF THE MEASURE

Basically, the corporate and the self-employed individuals' retirement plans are to be identical. Each plan of either sort must be in writing, it must provide for the payment of benefits only upon the retirement, death or disability of the participant, and contributions are at least partially non-taxable until they have been repaid to the participants. Thus, partially tax-free earnings can be set aside during an individual's high-income years, and though the funds will be taxed when repaid, the individual by that time will be in a relatively low tax bracket. In addition, taxes on the earnings of the money so invested will likewise have been deferred.

A retirement plan, whether for the employees of a corporation or for a self-employed individual and his helpers, must take one of four basic forms. 1. A profit-sharing plan, in which a portion of the employer's profit, if any, is paid into a trust according to a predetermined formula, and shares of that sum are credited to the various participants. 2. A pension plan requiring the contribution of sums actuarially computed so as to provide the participants with predetermined monthly incomes following their retirement. 3. A money-purchase plan calling for annual contributions either of a specified amount or of a fixed percentage of salary on behalf of each participant, the retirement benefits being whatever such annual contributions (plus

the fund's earnings) will purchase. 4. A bond-purchase plan, an innovation provided by H.R. 10, but henceforth to be available to corporations as well as to the self-employed. The bonds that the government will issue for this purpose are to be registered in the names of the participants, they are to be nontransferable, and they will be cashable only when the participants reach retirement age, unless they become disabled or die in the meantime.

SPECIAL RESTRICTIONS UPON THE SELF-EMPLOYED

A self-employed person may contribute up to 10 per cent of his earnings or $2,500, whichever is less, into the pension fund each year, but he may deduct no more than half his contribution from his "earned income" in computing his federal income tax for that year. The plan must cover all of his employees with three or more years of service, and the contributions he makes to the fund on their behalf are non-forfeitable, right from the start. When the self-employed man receives benefits from the fund, the portion representing his tax-deferred contributions, plus whatever amount his share of the fund has earned, will be taxable to him as ordinary income, unless he takes them as a lump sum, and then they will merely be spread over a five-year period, for tax purposes, rather than taxed as capital gains.

There are some additional restrictions. In the case of a partnership, one or more partners may elect not to participate, but the plan must include all of the employees. If the self-employed individual wishes to make additional contributions to his share in the retirement fund, he may do so to the extent of 10 per cent or $2,500 from his after-tax earnings, whichever is less, provided that his employees have a like privilege. There can be no tax deferral on these additional contributions, and this option is not available to self-employed people who have no employees.

It is unnecessary that a self-employed person have employees in order to establish a qualified retirement plan, but if he later acquires employees and if they serve him for three or more years, they must also be covered. The same is true of a partnership with no employees.

DISADVANTAGES OF PLANS FOR THE SELF-EMPLOYED

From what has already been said, some of the inequities of H.R. 10 are apparent. The tax deferrals upon the contributions of a self-employed person are to be strictly limited, whereas stockholder-employees of highly successful businesses are permitted deferrals on considerably larger sums paid into pension funds on their behalf. As between the employees of a self-employed person or a partnership, on the one hand, and the non-stockholder employees of a corporation, on the other, there is no discrimination.

Under the pension plan of a corporation, the contributions made on behalf of an employee—together with whatever his share of the fund may be said to have earned—can be made forfeitable if his employment is terminated before a specified number of years have elapsed. This is one of the technics that businesses use in their endeavor to retain valued workers, and it might seem that professional men and shopkeepers should be permitted to use it, but they are not.

If an employee of a corporation—one of the officers of the company, let us say—retires and elects to receive his pension benefits as a lump sum, he gets capital-gains treatment on the amount he must then report to the Internal Revenue Service. Employees of the professional man or shopkeeper also may have capital-gains treatment. But, as has been mentioned, this is denied to the self-employed person. Besides, the first $5,000 paid by a pension plan to the beneficiary of a corporation employee, following his death, is exempt from the federal estate tax, but all such benefits are taxable to the estate of a self-employed person.

STILL, H.R. 10 IS A STEP IN THE RIGHT DIRECTION

Despite its shortcomings, however, the Self-Employed Individual's Retirement Act of 1962 has some attractions, and we hope that every non-salaried physician in Iowa will seriously consider availing himself and his employees, if any, of the opportunities it offers. First, it provides physicians an additional inducement to offer their paramedical help, their secretaries and the young men whom they wish to bring in as their associates. Old-age security has come to be one of the things that even youngsters consider when they choose among the job opportunities open to them, and now the professions have been enabled to compete with corporate business in offering such "fringe benefits." Second, it may seem that the tax deferment on just half of the doctor's annual contributions (up to 10 per cent of income or $2,500 per year, whichever is smaller) would bring him no more than a minor saving, but the tax deferment on the earnings of the money he invests in the pension program over two or three decades is a far more important item. At even 3 or 4 per cent compound interest, the earnings and the earnings-on-earnings, in about 18 or 20 years, will virtually equal the total of his annual contributions, and he will be taxed on those amounts at only a modest rate following his retirement.

CONCLUSION

It is quite possible that future Congresses can be persuaded to eliminate some of the restrictions that have been enumerated here. If so, the need for a professional corporations act would be entirely eliminated as a means of obtaining tax equality for the self-employed.

Rather than pressing for the passage of a professional corporations act in Iowa, physicians should wait to see how well the present federal measure meets their needs.

An Open Letter to All Physicians' Wives

To sin by silence when we should protest, makes cowards of us. Being cowardly or not is scarcely the issue. As Abraham Lincoln once said: "I wish you to remember, now and forever, that it is your business to rise up and preserve the Union and Liberty for yourselves. I appeal to you to constantly bear in mind that not with politicians, not with Presidents, not with office-seekers, but with you, is the question: Shall the Union and shall the Liberties of this country be preserved?"

Sometimes I think we are a nation of "why-doesn't-somebody-do-something-about-it" people. As wives of M.D.'s, we must not lack courage to take a vocal stand!

WE WILL DO SOMETHING ABOUT IT!

Not just a few of us, but ALL of us—you . . . and you . . . and you must act! You who are tired will visit with your friends and neighbors, or will write letters. Others will speak up wherever they have a chance—at P.T.A.'s, at service clubs or at Women's Clubs.

Others will garner influential people—news editors, publicity directors, public relations people—to be your spokesmen.

The LEAST active among you will influence your own families!

You will have this courage because everything that you hold dear is in jeopardy. Socialism is threatening the world, and we must have a haven of freedom. We cannot fail if WE SPEAK OUT! The truth is on our side.

Yes, American medicine has joined the ranks of freedom fighters. It is time for us to exert more than passive resistance. A farmer's wife has said: "It's not nearly so difficult to keep bureaucrats out of your business as it is to put them out after they have got in!"

A chain is only as strong as its weakest link. The Auxiliary to the Iowa Medical Society checks its "chain" constantly. Each member, EVERY member of an Auxiliary, joins with other doctors' wives throughout the nation to make a formidable force.

What is your personal contribution to the image of the doctor's wife in your home town? Are you like whipped cream that the slightest wind blows away? The wind is blowing stronger and stronger. We must dig in and become vital people, loved for our selfless service. Surely the greatest service we can render will be to defend our freedoms. If one of us is indifferent, if one of us fails, our chain is breaking.

Let each Auxiliary do some soul-searching. What does *your* community record as your contribution to the good of your town?

Because we are wives of M.D.'s, we are thrust into prominence in our communities. That prominence is exciting, but it is a great responsibility. Can you improve the image of the doctor's wife in your home town?

Sincerely yours,
Lillian Nielsen (Mrs. R. F.)

The AMA-ERF Program

The AMA-ERF program is primarily for the purpose of raising funds for the AMA's contributions to the support of medical schools. Gifts may be divided among all schools, or may be earmarked for a particular one of them. This year, in Iowa, the Auxiliary is concentrating on the S.U.I. College of Medicine, and all funds, unless otherwise indicated by the donors, will be earmarked for it.

The Loan Guarantee Fund offers financial support for medical students, interns and residents at any period of their training. For every dollar set aside as a guarantee by AMA-ERF, the private banking industry lends $12.50 at a maximum rate of 6 per cent simple interest. Loans will be repaid in installments beginning five months after training has been completed.

Every Medical Auxiliary is urged to contribute to this fund as generously as possible. This can be done through private donations, cash memorials (Acknowledgment cards are available for these), or any fund-raising project chosen by the Auxiliary. One Auxiliary has already given several memorials, has held a rummage sale in October, and plans to hold a silent auction in November.

It is suggested that when physicians make their generous donations to this project, they might share their gifts with their wives, thus enabling the Auxiliary to swell its contribution to AMA-ERF. Such a plan would bring credit to the Auxiliary as well as being of great benefit to AMA-ERF.

There are endless ways of raising money for this cause, so let every Auxiliary member get behind

the project and put Iowa over the top this year!

Members-at-large are urged to contribute to AMA-ERF through memorials or appreciations for a service.

—MRS. W. C. KASTEN, state chairman
American Medical Association Education and Research Foundation

H. E. L. F.

May I take this opportunity to remind all of you Auxiliary members of YOUR Health Educational Loan Fund? It continues to be especially popular, no doubt because six months may elapse after graduation before a loan begins bearing interest. Because of the numbers of applicants, the committee asks your help in the following ways:

1. We need your financial help, first through continuing to give 50c (or more, if possible) per capita per year; second, through memorial gifts; and third, and especially, through your wholehearted support of our one money-making project, the dance at the time of the Annual Meeting in April. The expenses of the dance are taken care of through the generosity of the Standard Medical and Surgical Company, so the entire proceeds from the sale of tickets can go into the Loan Fund. Without this project, we could not continue our loans. Please help us by seeing to it that your doctor husband sends in his $5 when he receives his dance ticket next spring. He doesn't have to dance—we're more interested in his contribution than in his ability to do the twist! But do join the other doctors and their wives, if possible, in our evening of fun!

2. We feel that the responsibility for carefully screening the applicants for loans lies primarily with county Auxiliary members. They are the ones who really know the applicants. We are anxious to assist every young person who qualifies, but with the rising tuition costs at all colleges and schools of nursing, we must be especially careful to lend only to those who are scholastically and financially responsible—in other words, to those who will *graduate* and repay their loans, while rendering service, of course, in one of the health fields.

3. Please urge the interested young people in your community to get their applications in early. Application blanks can be secured at any time from me or from Mrs. Hazel Lammey, 529—36th Street, Des Moines 12. If your Auxiliary can recommend the girl—or boy—the application should be put into the hands of the committee by June 1. We "processed" and granted several loans later than that last summer, but tardiness puts pressure upon both the committee and the applicant, and could and should be avoided.

You may be interested in knowing that we are helping two boys this year. One is in his second year of nurses' training in St. Louis, and the other is in pre-laboratory technician training at the State College of Iowa (Cedar Falls). The girls are in schools of nursing in every part of Iowa, and in addition, several are in Omaha and one is in Rochester. They are, of course, all Iowa residents.

We know that all Auxiliary members share our pride in the many who have graduated, and our satisfaction in knowing that we are helping even a little to relieve the shortage of nurses and other trained workers in paramedical fields. Our hope is that, in spite of rising tuition rates and in spite of requests for larger loans, we shall never have to refuse a well qualified applicant.

Though we cannot share all of the many fine letters we receive, we shall quote from just one of them, a letter from a girl who graduated in September. She wrote: "I can never express in words how much the loan I received has meant to me. Without it, I would not now be an R.N. Please thank all the Auxiliary members for me." And so we do!

—HELEN C. LONGWORTH (Mrs. W. H.), *Chairman*
Health Educational Loan Fund
628 South Boone Street, Boone, Iowa

Annual Health Education Workshop

On June 28 and 29, the 14th Annual Health Education Workshop was held at the Memorial Union of Iowa State University, at Ames. The Workshop's theme was: Leadership with a Purpose . . . Health. Two energetic and dynamic young rural sociologists, Dr. Daryl Hobbs and Dr. Ronald Powers, led us through the many facets of leadership in a highly stimulating manner.

Many new thoughts on leadership were projected during the session. Our experts began by pointing out eight basic "motives" for becoming a leader: achievement, prestige, power, status, recognition, dominance, security and access. These motives may be either self-oriented, where leadership would be used as a "means," or group-oriented, where it would serve as a "goal"—the ideal objective, of course.

It was brought out that several blocks that stand in the way of an individual's assuming leadership are: Insecurity, a fear of failure or rejection is one of these. It may stop even the potential leader who feels he has the skill, the knowledge, or a good source of necessary information. Our socioligists seem to feel that leadership often is a function of inheritance, a favorable situation or a high degree of socialization. It also stems from how much education and/or how much opportunity the potential leader may have had.

Much of the thinking on leadership brought out at the Workshop would seem too technical for

presentation in a brief report out of context and without clarification. Because this is true, I shall summarize just two more phases of leadership.

The well trained leader will recognize that any discussion group may be composed of any combination of the following basic types: the aggressor, the blocker, the recognition-seeker, the dominator, the playboy, and the anecdoter with his "I remember when—."

In conclusion, the best known of the various discussion technics are the small group, the panel, the huddle, the buzz session, the symposium, the interrogator panel, the committee hearing, the dialogue, the interview, the lecture, the brainstorming session, the role playing arrangement, the workshop, the conference and the seminar. The factors which would determine one's choice of technic to use in a group are: group size, group purpose, leadership pattern, leadership skills, group heterogeneity, formality, subject or problem, group's knowledge of the subject or problem, degree of communication, time needed for planning, time needed to execute technique, physical facilities, group standards, group identity and understanding of group roles.

Thanks to the skillful leadership of the team of Powers and Hobbs, most of us left the Workshop feeling pretty well equipped to bring new approaches to the problems of leadership and group participation back to our sponsoring organizations.

—MRS. S. P. LEINBACH
Chairman, Rural Health

Be Ready to Assume Responsibility

"Over these years of observation, your organization has proven to be the greatest asset the Iowa Medical Society has."
—GEORGE H. SCANLON, M.D., *President*
Iowa Medical Society

Rereading Doctor Scanlon's greetings in our 1961-1962 Yearbook convinced me that we now face the greatest challenge the Iowa Medical Auxiliary has met since its organization in 1929.

In order to meet this challenge, each one of us needs to rededicate herself to the Woman's Auxiliary in order to extend the aims of the medical profession.

The demands of family and community activities are heavy for most doctors' wives, but when you are called upon to serve as an officer or upon a committee of your county or state Auxiliary, make that call a *must,* knowing that you are serving your husband's profession and your community, as well as enriching your own life.

—MRS. RALPH WICKS, *Chairman*
Nominating Committee

COUNTY AUXILIARIES

Clinton

The Clinton County Medical Auxiliary is busy with plans for its Eleventh Annual Charity Ball, scheduled for December 1 at the Clinton Country Club. The theme for the 1962 Ball is "An Old Fashioned Christmas."

Mrs. M. J. Vruno and Mrs. H. A. Amesbury are general co-chairmen. They are assisted by the following members who are working on the affair: Mrs. D. F. Mirick, Auxiliary president, Mrs. E. R. Carey, Jr., publicity; Mrs. G. L. York and Mrs. V. W. Petersen, decorations; and Mrs. A. L. Jensen and Mrs. D. R. Schumacher, invitations.

The Auxiliary officers are: Mrs. Mirick, president; Mrs. J. F. Edwards, vice president; Mrs. A. L. Jensen, secretary; and Mrs. E. P. Weih, treasurer.

Mahaska

Eight members of the Woman's Auxiliary to the Mahaska County Medical Society met Tuesday, September 18, for a one o'clock luncheon at the Downing Hotel. Mrs. Blanche Kudrna was a guest of Mrs. L. J. Grahek. Mrs. Kenneth Lemon presided at the business meeting following luncheon.

Mrs. G. S. Atkinson, State BULLETIN chairman, presented this project and enrolled subscriptions to this publication.

Mrs. Lemon had received a request that Mahaska Auxiliary again collect and send drug samples and bandage materials for the Leprosy Foundation. It was decided that the group would work on this project for the year.

—MRS. ELLIS DUNCAN, *Secretary*

WA to the SAMA

The first meeting of the Woman's Auxiliary to the Student American Medical Association was held Tuesday October 6 in the old University Club rooms at Iowa Memorial Union.

WA-SAMA's purposes are to establish a closer relationship among wives of medical students and to educate the medical wife to the problems and responsibilities of the profession. The organization is open to wives of all medical students.

Dr. Sidney Ziffren, of the Department of Surgery at University Hospitals, was the guest speaker, and his topic was "The University Hospital's Disaster Plan." A coffee hour followed the program.

Officers for the current year are: Mrs. Charles Skaugstad, president; Mrs. William Scott, first vice president; Mrs. Cass Bailey, second vice presi-

dent; Mrs. Lyn Makeever, secretary; and Mrs. Eldon Reed, treasurer. Mrs. Wayne Tegler is advisor to this group.

Tips for Safety

HOME MAINTENANCE

1. Use lead-free paint on furniture and window sills. Always check the label on the paint can.

2. Clear grounds of broken glass, nails, bits of wire, sharp stones. Cover holes, wells and drains.

3. Check play equipment for rust and splinters.

4. Teach youngsters to store skates, toys and wagons when not in use.

5. Keep firearms unloaded and locked up. Ammunition should be kept under lock in a separate storage spot.

6. Lock up power tools after use.

7. Wear protective gloves when gardening or using household solutions containing harsh chemicals.

8. Store sharp knives and scissors in a special rack or drawer.

9. Turn handles on pots and pans toward the rear of the stove when cooking.

TOYS AND GAMES

1. Check play apparatus regularly for loose connections, rust, splinters, sharp edges and rickety moorings.

2. Select toys and games adapted to each child's age and level of physical aptitude.

3. Clear a creeper's path of small objects like buttons, pins and bottle caps that could choke or cut him.

4. Instruct children in the proper use of all action games.

5. Keep a close watch over backyard play areas.

6. Supervise children constantly when they are using archery sets, slingshots or darts.

7. See to it that children know and observe safety rules for skiing, both on water and on snow, and skating.

8. Don't allow a child under three years of age to have popcorn or nuts.

9. Don't let a youngster under 16 years of age operate a mechanized vehicle such as a car, motorcycle or go-kart.

—MRS. RALPH MOE, *Safety Chairman*
Council Bluffs

News Notes

Mrs. James F. Bishop, 212 Hillcrest Avenue, Davenport, has consented to serve as Councilor for District VIII to complete the term of Mrs. George McMillan, Fort Madison, who resigned to become president-elect of the Woman's Auxiliary to the Iowa Medical Society. Mrs. Bishop is president of the Scott County Auxiliary.

* * *

Mrs. Erle E. Wilkinson, National AMA-ERF chairman held a regional workshop for state presidents and AMA-ERF chairmen at the Hotel Fort Des Moines in Des Moines on Monday and Tuesday, October 15 and 16. A complete report of this meeting will appear in the December issue of the Auxiliary News.

In Memoriam

Mrs. H. L. Schrier, Fort Madison
Mrs. J. I. Marker, Davenport
Mrs. W. F. Brinkman, Pocahontas

Your new Auxiliary News editor, *Mrs. R. H. Palmer, Box 568, Postville, Iowa,* asks that materials for publication in the WOMAN'S AUXILIARY NEWS be forwarded to her by the fifth of each month. Your cooperation in forwarding news items as promptly as possible will be greatly appreciated.

WOMAN'S AUXILIARY TO THE IOWA MEDICAL SOCIETY

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JOURNAL of The IOWA MEDICAL SOCIETY

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DECEMBER, 1962

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References: (1) Malone, F. J., Jr.: *Mil. Med.* **125**:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* **34**:187, 1959. (3) Ullman, A.: *Delaware M. J.* **32**:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* **108**:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* **10**: 694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* **11**:392, 1960.

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The Joint Commission on Accreditation of Hospitals

KENNETH B. BABCOCK, M.D.
Chicago, Illinois

THE FIRST HOSPITALS—those of the Crusaders and those of the kings, queens and lords—were hotels rather than true hospitals. They were usually on the outskirts of town. As much as a desire to do good, to expiate sins or to perform an act of Christian charity, the motive that led to their establishment was a wish to put the sick and indigent out of sight and out of mind. The early hospitals were institutions of convenience—a means of easing the consciences of the rich and powerful, a way of putting unfortunates out of sight, much as one might sweep dirt under a rug. The mortality rate in those places was almost 100 per cent. Lepers mixed with tuberculosis patients, who in turn mixed with pregnant women and blind and crippled children.

As we read the speeches of American statesmen such as Clay, Webster, Lincoln and William Jennings Bryan, of the Nineteenth and early Twentieth Centuries, we learn only of the great social necessities of the people—food, shelter, clothing, gold and silver. No mention was made of health; nothing was said about hospitals. Progress, however, is not to be denied, and with the advancement of science and the development of a science team, things have happened.

There was a time, as I have said, when the hospital was a place to go only to die. It was "out of sight, out of mind." Its function was one of conscience-salving, rather than of rehabilitation. Don't smile, for many of our mental institutions are still just that, and not much more. Yet I believe the old era, as far as general hospitals are concerned, has passed. The hospital is now a place where one gets better, and not a place where he dies.

What is a hospital? There are many definitions, none of them quite accurate, but the one I like best is the old Quaker statement: "A hospital is a bettering place." Furthermore, the modern hospital is regarded as an essential element in good community life. A community with a good and ample hospital service is a relatively good and safe place to live. All of a sudden, health has assumed "number one" importance. What good are food, shelter, clothing, silver and gold, without health? Health *is* important. Health is everybody's business!

Dr. Babcock, the director of the Joint Commission, made this presentation at the 1962 annual meeting of the Iowa Medical Society.

HISTORY AND PHILOSOPHY OF THE JOINT COMMISSION

After a short orientation period in 1952, the Joint Commission on Accreditation of Hospitals began to function as an independent, autonomous, voluntary organization on January 1, 1953. The 20 commissioners who compose its governing body serve without pay. It is they who write the standards for hospital accreditation, amend them or delete them. The Joint Commission's budget of approximately $400,000 per year comes from the dues paid by the four member organizations, and the contribution from each of the four is proportional to its representation on the Joint Commission.

There are seven commissioners from the American Medical Association; three from the American College of Surgeons; three from the American College of Physicians; and seven from the American Hospital Association. I have listed them thus in order to help you notice that 13 of the 20 commissioners—always almost a two-to-one majority—are doctors of medicine. It is a doctors' organization, controlled by doctors. Likewise, its surveyors—the men who inspect the hospitals—must be doctors of medicine. There are no lay surveyors.

Hospital accreditation embodies one of the finest arts organized medicine has ever developed in this country. Through accreditation, doctors have been willing to sit down together and review their work, review their errors, and consider better methods for carrying out procedures. In no other profession in this country are men willing thus to stand the scrutiny of their professional brothers. No group of lawyers will sit down and discuss with one another the results of their work, considering a case which was presented improperly, with poor results. There is no group of architects who sit down together and view the buildings they

have constructed, exposing themselves to comments that the architectural lines were wrong, that they failed to provide a sufficient number of elevators, or that the footings were inadequate. There are no groups of artists who sit down and present their creations for the criticism of other artists. Yet that is exactly what the doctors of our country have taken it upon themselves to do voluntarily. Why? Why this group and no other? It is because they realize that upon their shoulders rests the most precious commodity of our people—their good health.

If you are from an accredited hospital, it is thus possible for you to say to your patients and your community, "Our hospital functions are being carried out in such a way that they meet at least the minimal standards of safety set up by prudent physicians and administrators in our national and hospital organizations." The objectives of American hospitals have been stated as "the four R's": "Hospitals must live up to their *responsibilities;* have proper *rules* of conduct; keep adequate *records;* and *review* the work done constantly, in order to assure quality care."

THE TRUSTEES AND QUALITY CARE

Is the quality of patient care a concern of the hospital trustee? It should and must be. Our courts have stated that trustees are legally, morally and ethically responsible for *everything* that goes on in the hospital. This cannot be said often enough, for too many lay trustees have great reservations or hesitation about becoming involved in the actual patient-care aspects of a hospital.

A trustee has said, "I understand the legal obligation. I can be sued for improper circumstances and occurrences in the hospital, but where do ethics and morality come in?"

The answer to that question is as follows, and in giving it I am speaking to doctors as well as to trustees, for they both have the moral and ethical responsibilities, though ultimately the legal one belongs to the trustees. You, the trustees and the members of the medical staff, place a stamp of approval upon the physicians practicing in your institution, and upon the policies and procedures utilized there. You have the same responsibility for the nurses, the technicians and the other personnel. Patients are actually placing their lives in the hands of the personnel of your hospital, and are assuming that you have carried out your duties in selecting those people. You are assuring the public: "This is a good hospital. We are representative and responsible citizens of the community, and we have taken great care in selecting competent people to care for you."

ETHICAL RESPONSIBILITIES OF THE MEDICAL STAFF

Legally, each doctor is responsible only for the care of his own patients, but both physicians and trustees are ethically and morally responsible for quality patient care throughout the hospital. The trustees delegate their responsibility to you doctors as a group, to see that good care is rendered, since they know so little about the matters that are involved. Collectively, you should and must live up to that responsibility. As I said before, however, the final and ultimate responsibility at law belongs to the trustees, and they cannot abrogate it. When a hospital is sued, it is the trustees and not the staff members who are called into court.

To help hospitals and medical staffs live up to their responsibilities, the Joint Commission has set up specific standards and principles. These, it must be reiterated, are minimal standards. They constitute a floor, not a ceiling. The commissioners of the Joint Commission on Accreditation of Hospitals hope and pray that you will exceed them.

The Joint Commission grants a certificate of accreditation to a hospital when it comes up to their standards, or surpasses them. However, the commissioners think that their most important function is that of helping hospitals and medical staffs to render the best patient care possible. To be truthful, even though we have been given the role of umpire, we don't like to be thought of as disciplinarians or even as impartial arbiters. Each one of us, deep down, is an advocate of better patient care. The complaints or criticisms that come to us concern the methods or mechanics of providing quality patient care, and the balance of this paper will concern those subjects.

The Joint Commission does not wish to practice medicine, but it does believe in helping hospitals and medical staffs by applying certain standards and principles.

SHOULD DOCTORS BE MEMBERS OF HOSPITAL BOARDS OF TRUSTEES?

An arbitrary "yes" or "no" to this question would be foolish. The commissioners of the Joint Commission say, however, that there must be liaison or rapport of some sort between the board and the staff. Doctors may be elected or appointed to the board, but in any event there may be—and the Joint Commission recommends it—a joint conference committee containing equal numbers of staff and board members, to function in a purely advisory capacity. Any combination of these technics is an acceptable way of maintaining liaison. Indeed, the chief of the medical staff can be made a member of the board *ex officio.*

REQUIRED STAFF MEETINGS

The commissioners of the Joint Commission say that it is up to each individual hospital to assess its own needs, to live up to its responsibilities, and then in its bylaws, rules and regulations, to put down the meeting and attendance requirements in black and white. It is only through self-analysis

and self-education that a hospital personnel can improve itself.

Let me give some typical examples. First, let's take the large, highly departmentalized hospital of 300 or more beds. For this type of institution the day of the large hospital staff meeting is over. Though exceptions are possible, large meetings at such a hospital probably need to be held no more frequently than once each three months, or once each year. However, major department meetings must be held at least monthly, and there must be documentary evidence such as minutes to prove that patient care is being properly reviewed and evaluated at those sessions.

The intermediate size of hospital, containing between 100 and 300 beds, can function as above, or if the staff members decide to do so, they can hold six general staff meetings per year, and hold departmental meetings in each of the alternate months.

The small hospital containing fewer than 100 beds should not hold departmental meetings, the commissioners of the Joint Commission believe. Administrative policies can be set at the departmental level, but departmental meetings are impractical. Monthly general staff meetings probably should be held at such institutions, with attention focused successively on the various departments so as to insure a good review of hospital care in all of its aspects for everyone who is concerned with it.

When the surveyor visits a hospital, he reviews its meeting requirements, and he has the privilege of stating in his report either that they are adequate or that they are inadequate. He bases his decision upon whether the hospital's stated requirements as regards numbers and types of meetings are being fulfilled, whether a good review of patient care is being provided, and whether the documentary evidence of meetings is sufficient.

HOSPITAL PRIVILEGES

These will be determined locally, and it is expected that in performing this function the medical staff and its appropriate committees will live up to their responsibilities and will exercise integrity. There can be no quantitative standards for a doctor to satisfy—so many assists, so many patients hospitalized—before he becomes eligible to perform major surgery, to interpret electrocardiograms, to perform exchange transfusions on infants, or to treat diabetic acidosis. Rather, each man must be considered as an individual. What is his training? What experience has he had? Is he competent? Would I be willing to let him do the procedure in question upon me? If you wouldn't let him care for you, how can you permit him to care for the other fellow?

Above all else, the commissioners say, "Judge not a man *solely* by his label." You must not give men unlimited or major privileges just because they have their respective boards or colleges. Worse yet would be a general prohibition such as "No general practitioner may do major surgery, medicine or pediatrics." Judge each man as an individual, truthfully, and honestly. While I am at it, let me touch upon the osteopaths. The privileges to be granted such a man should be determined in the same manner as for any M.D. If you are at a loss as to his capabilities, put him on probation and observation for three to six months so that you can have an opportunity to evaluate them.

CONSULTATIONS

The commissioners of the Joint Commission on Accreditation of Hospitals require consultations in six categories. Three are mandatory and three are judgmental. Consultations must be held on therapeutic abortions, human sterilizations and primary cesareans. We do not give you the indications. We say that you—each hospital staff in its own wisdom and judgment—will write your own rules and regulations, but we maintain that there must be consultations. It is true that these operations are not so severe or critical as many others, but they have such serious moral and ethical connotations that there must be a sharing of responsibility for undertaking them. The Commission has no recommendations concerning hysterectomies on women of the child-bearing age. Many hospitals require consultations prior to such operations, but theirs are local rulings.

The Commission's three "judgmental" categories —types of cases in which consultations *should* be called—are those in which the patient is in a critical condition; those in which the diagnosis is in doubt; and those in which the therapy is in doubt. I don't think I need enlarge upon the need for consultation in such instances, except to say, "When in doubt, call a consultation." In many instances it may save the patient, and on some occasions it may save the doctor from a lawsuit.

ASSISTANTS AT OPERATION

The commissioners say, "There will be a qualified physician assistant present at all major operations." Two of those words need defining. *Qualified* means approved by the credentials or executive committee of your own hospital as competent to assist. It is not a question of whether a referring doctor or general practitioner may assist. Of course he may, if he is qualified—able to contain the case.

Major, in that sentence, means any operation in which the patient's life is in danger, or one that involves the opening of a major body cavity. For your information, this includes all appendectomies and hernia reductions. A physician anesthetist giving the anesthetic does not qualify as an assistant. It is interesting to note that in Nebraska a physician assistant is required by law. A judge in Nebraska, in rendering a decision favoring the plain-

tiff, said, "The need for a physician assistant at a major operation is similar to the requirement for a co-pilot on a commercial airliner. He is not needed often, but when needed he is badly needed."

PATIENTS' CHARTS AND SIGNATURES

The Joint Commission's statement in this regard is that on every hospital inpatient there will be an adequate medical chart. The term *adequate medical chart* means a chart which another physician could understand and rely upon, in assuming responsibility for the patient's further care, without having to take a second history or give a second physical. No mention is made of the number of words or paragraphs that it must contain, or of the number of pages it must occupy. Is it adequate? Does it justify the admission and warrant the treatment?

It is felt that if initials are consistently used and are recognizable, they are just as acceptable as full names or signatures. The ruling is that when an order or orders are given, they should be signed for at the time, or as soon thereafter as possible. It is not satisfactory for the physician to sign each page of orders, if two or more have been written thereon. Why? Because it is poor policy for the doctor as well as for the hospital, and sometimes it is positively illegal. The order sheet many times contains orders from several physicians, and if the only signature is the one appearing at the bottom of the page, that doctor assumes legal responsibility for all of them. Likewise, there is a federal requirement that most drugs can be given only on a written prescription. A lay person going into the drugstore and asking for penicillin or thyroid must have a prescription. There is nothing in the statutes that says this requirement can be abrogated or waived for hospital patients. Patients have been overmedicated, undermedicated and wrongfully medicated. Your oral prescriptions should be checked and signed STAT.

If the history, physical and summary have been written for you by a house officer (junior), you should read them, make whatever amendments are necessary, and then authenticate them. If not, you do a disservice to the patient, the house officer and yourself. The patient may be harmed, for if the account is weak or incorrect, trouble may befall him in the future. The house officer will suffer from such negligence, for he is at the hospital in a learning capacity and you have failed to check his work. You will be hurt if the case results in a trial, for in court the written record will be accepted in preference to your memory. If you and the house officer disagree, write out a short statement of your own and sign it.

MEDICAL-STAFF ORGANIZATION

All that I have said about good patient care, with its enforcement of principles, rules and regulations, is dependent on good medical-staff organization. If you act as a thoughtful team, working for the benefit of the patient—for the greatest good—your hospital will flourish and be respected in your community. If, instead, the medical staff members act as individuals, each man as a law unto himself, then trouble is in the offing. Several thousands of years ago, Aesop wrote his fables, but his story of the single stick and the bundle of sticks still holds true.

Many studies on different aspects of quality care in hospitals have borne out the fact that the well organized, well supervised, well controlled hospital is less likely to incur lawsuits, has better public relations, and has a better reputation in its community than do those not so well organized. To physicians, to the hospital itself, and to the community at large, this has meant that the institution is maintaining and exceeding known and approved standards; that the work performed at the hospital is under constant scrutiny for the improvement of quality care; and that only the best is good enough for that important person—the patient.

CONCLUSION

In conclusion, let me say this: Doctors, hospital administrators and trustees should be proud of the Joint Commission on Accreditation of Hospitals. Here is what the Honorable Waldo Monteith, minister of national health and welfare for Canada, said: "The program's achievements are important. But no less important is the way it has been carried out. This has not been something imposed from above by government or any other authority. Hospital accreditation has been a spontaneous effort on the part of the medical profession and hospitals to put their houses in order—to set their own ideals of service and efficiency and to translate these into practice. They have been their own conscience and watchdog. They have asked for no financial assistance from any quarter. Theirs has been an exercise in self-discipline which could well commend itself to professional groups everywhere."

Note the changed place and dates, and
Mark Your Calendar
1963 ANNUAL MEETING
IOWA MEDICAL SOCIETY
April 7-10
Hotel Fort Des Moines

Scientific Articles

The Medical Examiner

RUSSELL S. FISHER, M.D.
Baltimore, Maryland

The recently enacted legislation in Iowa establishing a medical examiner system provides that physicians working in cooperation with law enforcement agencies shall investigate violent, sudden and suspicious deaths. The responsibility for the medical aspects of the investigation thus necessarily rests on the shoulders of doctors, many of whom are general practitioners with little or no formal training in forensic work. Nevertheless, the law represents a great step forward, since it will bring men with a knowledge of medicine into the primary phases of each investigation, and pathologists will assist whenever autopsies are necessary. Thus a great many technics for medico-legal investigations are now available which were lacking under the old coroner system.

DEFINITION OF MEDICO-LEGAL CASES

The law is sufficiently broad so as to require the investigation of all deaths in which the public interest is concerned, for it directs that the medical examiner shall report on all deaths "due to violence, suddenly when in apparent health, unattended by a physician for 36 hrs.," those "resulting from abortion," and those "resulting from accidents in the mining industry," those of "persons in the custody of the law," those occurring in a "suspicious or unusual or unnatural manner" and those due to "disease which may be a threat to the public health." The law is commendable further in that it vests the authorities with power to order autopsies "if in the opinion of the medical examiner it is advisable and in the public interest."

What, then, are the commoner problems that confront the general practitioner, medical examiner or pathologist who is cooperating in the investigation of the above-enumerated deaths? First is the difficulty of obtaining adequate information on the events that led up to the subject's death. A police official is likely to document it well if it is a criminal case, but being untrained in medicine, such an individual is rarely appreciative of the need for a detailed description of the symptoms suffered by the subject prior to death. If properly elicited, the history adequately explains the death, including, for example, rather than the usual vaguely defined statement that "the patient was sick," the fact that he was "sick with crushing substernal pain which radiated into the neck and down the arm to the little finger." In the absence of an adequate history, we must frequently have recourse to an autopsy, whereas proper questioning of relatives might have indicated the cause of death with sufficient accuracy to allow certification.

We recommend the general formula that the cause of death must be demonstrated beyond reasonable doubt in a medical examiner's case, and we feel strongly that to compromise this principle is to invite failure in detecting murder or contagious disease, or to allow the destruction of evidence in a murder case to such an extent that the case cannot be successfully prosecuted. The courts are supported, at considerable public expense, to administer justice and to settle disputes in the most informed manner possible. They need the medical facts, and you can obtain them in many instances only through an investigation and a postmortem examination performed on official order at the time of death. It is our experience that between 18 and 20 per cent of all deaths will require official inquiry to satisfy those criteria.

Dr. Fisher is chief medical examiner for the State of Maryland, a professor of forensic pathology at the University of Maryland Medical School, and a lecturer in forensic pathology at the Johns Hopkins Medical School. He made this presentation at the 1962 annual meeting of the Iowa Medical Society.

RECORDING THE FACTS

Second only to selection of cases is the preservation of the evidence, once it has been developed. It is impossible to overemphasize the necessity of writing adequate notes at the time the case is being investigated, in such detail as to allow the physician to describe the injuries with accuracy and assurance months later in court. In addition, sketches should be made of the site and nature of each injury.

I recall a recent case in which a postmortem examination was performed by a competent pathologist. He no doubt witnessed the linear fracture in the left temporal region of a child who had been beaten by his father. The fracture had been demonstrated by x-ray before the infant's death. But the pathologist was busy and performed several other autopsies before dictating the record on this one. He described the epidural hematoma, but somehow left out the important details of the fracture. The defense attorney made short work of his testimony by making him admit that he had not described the fracture and was confused as to whether it had actually been present, since it did not appear in the record. Thus, it is well to emphasize the usefulness of going over the report in detail and correlating it with photographs and other information as to the pathogenesis of the injuries, both while the case is fresh in your memory and just before you go to court to testify.

I find that the most frequent of the deficiencies in the conduct of cases occurs at an earlier stage than the autopsy itself. It takes place when the body and clothing are first examined. All data possible must be gathered before the autopsy is begun. The nature of our work is such that we cannot make every possible examination in every case. The choice of procedures to be used is thus greatly dependent upon the information available before the autopsy is started, and the physician is well within his rights in demanding that the police and other officials make every known fact available to him at the time he first looks at the body.

IDENTIFICATION

In most cases, the identification of the body will have been accomplished by law enforcement officers before the physician enters the case. His records should include specifically the name of the individual who made the identification and the manner in which he made it—personal recognition, papers on the body, fingerprints, etc. When one is dealing with skeletal remains or burned bodies, it will frequently be necessary to depend upon dental identification or upon medical-history items enabling the pathologist to match findings at autopsy with old skeletal fractures or disease processes described by the relatives or friends of the missing person whose corpse the one under examination may be. In a recent Maryland fire, ten women were burned to death, and in five cases we were able to develop histories of abdominal surgery. The operative notes furnished by the attending surgeons described findings that enabled us to identify each of those five.

The Federal Bureau of Investigation will occasionally effect a positive identification based on a single fingerprint, if the physician can provide the name of the person to whom it is supposed to belong, and can tell which finger the print is derived from. Even in badly decomposed bodies, there is a photographic technic by which the Federal Bureau authorities can "raise" fingerprints, if the amputated hands are submitted to them. When one is dealing with traces of bodies, the so-called Barr body—a unique deposit of chromatin beneath the nuclear capsule in epithelial cells—may serve to indicate the sex of the person from whom the specimen was derived. The use of consultants in anthropology, entomology, botany and other allied sciences may produce information as to the sex and age of the skeletal remains, or as to the time-lapse after death which would be invaluable in the solution of a medico-legal problem. Each medical examiner or pathologist should have a list of the names of such experts whom he can call upon for help in difficult cases.

CHARACTERISTICS OF GUNSHOT WOUNDS

In reviewing the pathologic evidence to be gathered in a variety of types of violent death, I shall begin by listing the criteria which we use in evaluating gunshot wounds—the commonest cause of homicidal and suicidal deaths in our jurisdiction. The autopsy may shed additional light on the findings made during the preliminary examination, but the general practitioner should have sufficient knowledge of gunshot wounds so that he can estimate the range from which the shot was fired, in most instances.

1. *Marginal abrasion and soiling—the denudation of the surface epithelium around the entrance wound, where the skin was depressed and stretched over the entering bullet.* This causes soiling and scraping away of the margins in closest contact with the bullet, and usually leads to a hole slightly smaller than the caliber of the bullet. It is the distinguishing characteristic of the entrance wound, and is seen regardless of the range from which the bullet was fired (Figure 1).

2. *Stippling or tattooing or powder soiling in non-contact, close-range wounds.* This is due to the impact against the skin of hot powder grains from the gaseous discharge, and is made up of multiple tiny, abraded and burned areas in a circle surrounding the bullet defect. The density of the stippling and soiling by smoke varies inversely with the distance at which the weapon was fired, whereas the diameter of the area containing this powder soiling varies directly with that distance. In other words, the closer the muzzle, the smaller and denser is the circle of stippling and soiling.

In general, tattooing indicates the range to have

been no more than 18 in., although exceptions have been noted in cases where large-caliber weapons were used. Experimental firing of the same gun, with the same ammunition, may allow the weapons expert to produce patterns similar to those found on the victim, and hence to establish the range of fire at within an inch or two of the precise distance. The need for photographs of the entrance wound, rather than mere sketches of it, is thus self-evident.

3. *Annular abrasion or contusion.* This is the arc, circle or other mark of abrasion or contusion separated from the edge of the defect and marginal abrasion by a narrow band of intact skin, but related to the wound and caused by the gunsight or some other point on the muzzle. The arcs of abraded skin, whenever they occur, are concentric with the bullet hole. The lesions have been caused by a sudden slapping of the skin against the end of the gun as the skin was blown back by the gases expanding beneath it. In general, the point of contact will have been the outer margin of the muzzle, and frequently there will be "sight marks" where the skin was blown against the foresight or the recoil mechanism on the end of the gun barrel. When present, the annular contusions and "sight marks" are unmistakable evidence of close-contact wounding. They may sometimes have been obscured by the lacerations caused as the skin was torn by explosive escape of gases from the powder discharge.

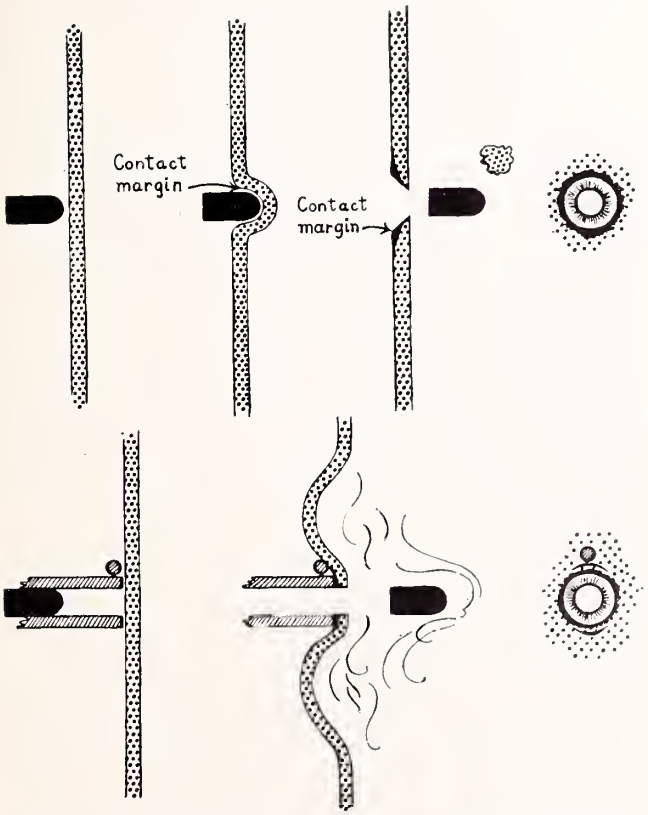

Figure 1. Mechanism of skin-wounding by bullet. Above: marginal abrasion in distance wounding. Below: annular contusion and "sight marks" in close-contact wounding.

4. *Foreign bodies in the wound.* In close-range or contact wounds, it is common to find fragments of burned or unburned powder or wadding along the tract of the internal wound. The use of a dissecting microscope is advised in this study.

In connection with soiling by powder residue, mention should be made of the paraffin cast and diphenylamine test for powder residue on the hands of persons suspected of firing the gun. Studies in the FBI laboratories have shown that false-positive nitrate tests can be obtained on tobacco smokers, and that positive tests therefore are not conclusive evidence that the suspect did, in fact, fire a revolver on the day of the crime.

Automatics, of course, rarely have powder-escape from around the base of the barrel, and the test is thus of extremely doubtful value in automatic-weapon cases. There are some instances, however, when the presence of multiple nitrate particles distributed over the approximating margins of the suspect's thumb, and first finger, and over the dorsum of his first, second and third fingers has some usefulness. When such findings are reported to the accused, and when he knows that he fired the gun, he may be impressed to the extent of being more cooperative in making a statement.

BLUNT INJURIES

Regarding blunt injuries, two significant points should be made. Of foremost importance is a recognition of the fact that intracranial, subdural and even extradural hemorrhages, intrathoracic hemorrhages and abdominal hemorrhages from lacerated viscera can and frequently do occur without there being the slightest evidence on the surface of the body that trauma has been sustained.

A second point to be mentioned is that at the first examination of an external laceration or contusion, one should attempt to determine the direction from which the blow was struck. This frequently is possible because of the tendency of wounds to show undermining on the side toward which the force was directed. Such a simple observation as that undermining has occurred at the upper margin or the lower margin of a horizontal laceration of the back of the head may be enough to point out the difference between a homicidal assault, with a blow from above and behind, and a fall wherein the victim's head struck the curb as he fell backwards.

That subdural hemorhages and skull fractures can be artifacts caused by overheating of the cranial contents during a conflagration is an important consideration in evaluating head injuries in bodies removed from burned buildings.

INCISED WOUNDS

In examining incised wounds, the physician should study the margins for hesitation marks typical of self-inflicted wounds, as contrasted with the sharp, clean margins of those usually caused

by assailants. Likewise, the pathologist, by estimating the depth of penetration of the instrument, as well as its diameter or minimum width, may render real assistance to the police in their search for the fatal weapon.

CRIMINAL ASSAULT

The medico-legal investigation of rape cases deserves mention, perhaps, though in Iowa it falls within the province of the medical examiner only when the victim has died at the time of or shortly after the sexual attack. Investigation of alleged rape frequently falls to the family physician because he is likely to be the first person called upon to give the victim aid or advice. His role should include both the care of the patient and the collection of evidence likely to be useful in establishing the occurrence of the assault, and the identity or guilt of the assailant. To sustain a criminal assault charge, the courts usually require evidence that the crime was accomplished by violence and against the resistance of the victim, as evidenced by bruises, scratches or other injuries in and about the genitalia of the victim. The identification of spermatozoa in stained smears from the victim's vagina is the best proof of intercourse, and if accompanied by evidence of injury, may confirm the allegation of rape.

Any delay in collecting such specimens may defeat the purpose of the examination. They should be collected on wooden applicators, and smeared immediately on glass slides and allowed to dry promptly. Wet swabs deteriorate, and a specimen should never be submitted to the laboratory in that fashion. Positive identification of spermatozoa in smears from Egyptian mummy material have been obtained where the material was dried. Yet, spermatozoa may disappear in as short a time as an hour, from the normally moist, acid vagina. Specimens of clothing bearing stains should be allowed to dry before a fan or a warm radiator, and then should be packed loosely for transmission to the laboratory. In certain cases, a liquid specimen can be aspirated from the vagina for the phosphatase test. These samples should be refrigerated continuously until the test is done. There is no phase of medico-legal investigation in which promptness and the proper kind of sample are of greater importance than in the collection of evidence in rape cases.

DETERMINATION OF ALCOHOL CONTENT

Determining the alcohol content of the victims of violent deaths is another aspect of medical evidence collection, the importance of which is not widely recognized. Yet, we find alcohol to be a factor in a higher percentage of vehicular and homicidal deaths than almost any other. The general practitioner who is investigating such cases cannot consider his study complete without collecting a sample of blood or spinal fluid for an alcohol determination. Tables 1 and 2 present some statistics on the frequency and the amounts of alcohol findings in our medico-legal investigations.

TABLE 1

ALCOHOL IN HIGHWAY VICTIMS

1960—Baltimore

Type of Accident Victim	Total Cases	Alcohol Content: Below .04%	.05-.14%	.15-.24%	.25% or More
Pedestrian	35	22	2	9	2
Driver	41	17	9	12	3
Passenger	23	9	7	7	
Total	99	48	18	28	5

TABLE 2

ALCOHOL IN HOMICIDE VICTIMS

1960—Baltimore

Type of Death	Total Cases	Alcohol Content: Below .04%	.05-.14%	.15-.24%	.25% or More
Shooting	37	17	8	9	4
Stabbing	27	5	9	10	3
Blunt Force	17	10	3	4	
Total	81	32	20	23	7

SUMMARY

1. The public interest demands that our laws provide, and that the administrative agencies in our government establish, facilities for the competent investigation of all deaths due to violence, those of an accidental nature, those occurring to people suddenly or in apparent health, and those occurring under unusual or suspicious circumstances.

2. In many urban and nearly all rural areas of the country, it is the general practitioner who will be called upon to conduct the primary investigation, to elicit medical history, and to make a decision as to the need for an autopsy. He is a most important member of the medico-legal investigative team.

3. The general practitioner, if he is to assist in medico-legal investigations, should familiarize himself with the basic pathology of the various mechanisms of wounding, and the fundamentals of collecting and preserving evidence.

4. Measurable alcohol content of the blood and spinal fluid is to be found in considerable numbers of individuals whose deaths have been violent, and probably it has been a contributing factor in many of those fatalities. Thus, such measurements should be included in the toxicologic studies.

Clinical Masquerades Of Acute Cardiac Infarction

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WHENEVER A CLINICAL DISEASE which has existed for a long time at a subterranean level suddenly is identified and gets to be recognized regularly, the frequency of its diagnosis rises, though its incidence remains stable. As the sophistication of physicians grows, the incidence of diagnosis approaches the actual incidence of the disease in the population. Indeed, the frequency of diagnosis may temporarily exceed the incidence. Heart attacks must have occurred ever since there first were people to have heart attacks. Enthusiastic medical historians even suggest that Buddha may have died of a myocardial infarct. Who am I to say that someone living in a state of placid contemplation did not allow his fat deposits to become mobilized and to coat the intimal lining of his coronary arteries, and thus to ruin himself with a myocardial infarct?

James B. Herrick, who was born in not very distant Oak Park, Illinois, a bit more than 100 years go, first pointed out to clinicians that myocardial infarction is much more than a curiosity for the pathologist, and thus that it has importance for clinicians and especially for the patient. The reason for its having this importance is that people can survive it. Earlier, it had been the doctrine of pathologists that a clot in a coronary artery, obstructing the flow of blood to the heart muscle, must be necessarily and immediately fatal. It was the great contribution of Herrick to make myocardial infarction the concern of the physician, for he demonstrated clearly that myocardial infarction is in no sense invariably—or indeed often rapidly—fatal.

The classical picture of myocardial infarction was recognized as centering about the clinical problem of pain—urgent pain, violent pain, pain under the breastbone, pain of a type which might be very much like that of angina pectoris, but more insistent; pain often not coming on under circumstances in which angina regularly occurs, and not relieved by the things which relieve anginal pain. Herrick rescued myocardial infarction from such misdiagnoses as "acute indigestion."

About 40 years ago, myocardial infarction had come to be recognized so readily in this country that Henry Christian could say it was a diagnosis for third-year medical students. That was true. This advance in understanding was partly the result of the fact that electrocardiology had given us a new diagnostic weapon. We did not have to depend on what we could learn by correlating clinical experience with what was found after death in patients with infarction of the heart. The first electrocardiograms, however, usually were taken in musty basement laboratories. The patient had either to wade into a tank or to put his feet into two buckets of water, and to be festooned and decorated with great wires and cables, so that they were not easy to do with people who were suspected of having myocardial infarcts. Only later, when the modern method of using electrodes developed, was it possible to use the electrocardiogram as a helpful device.

With the emphasis on the electrocardiogram and on the clinical phenomenon of pain, the diagnosis became commonplace. We began to recognize attacks that were less severe. It then gradually came to be recognized that cardiac infarction indeed was not usually a fatal event. Large collections of case records now indicate that only one out of four or five people with acute myocardial infarction dies.

Later on, when this diagnosis had become fashionable, pain in the chest too often was casually assumed to indicate myocardial infarction, and too infrequently were the other possible causes evaluated. Herrick was able to find 80 conditions other than myocardial infarction which had been thus misdiagnosed. In addition, with the intensive focus on pain in the chest as a major symptom or clue to myocardial infarction, instances of unusual, atypical, bizarre or different clinical patterns of infarction were missed. In other words, if pain did not occur, it was likely that the disease would not be suspected, and thus would go unrecognized.

Dr. Bean, the head of internal medicine at S.U.I., made this presentation at the Annual Refresher Course for General Practitioners, sponsored jointly by the College of Medicine and the Iowa Chapter of AAGP, at Iowa City in February, 1962.

After we became relatively sophisticated in identifying the classical attack, it became important to recognize diagnostic errors in patients in whom the disease masqueraded under one of the several disguises that I shall tell you about. Again, these lessons are learned from the pathologist, because with errors in diagnosis, the disease is recognized only at autopsy; or examples are picked up in the taking of routine electrocardiograms. Thus we are able to learn from our oversights, omissions and errors.

I shall not deal with what, perhaps, is the most common clinical masquerade—an absence of complaint from the patient. Attacks occur in people who are unconscious, sometimes during a surgical operation; in people who are insane or in custodial mental institutions; in people who are feeble minded; in deaf-mutes; and in people who in some other way are so disorganized that they cannot relate to the physician what is going on inside them, if indeed in their torpor or mental confusion they perceive what actually is happening. Instead, I shall talk about instances where the disease occurs under conditions which are recognized as indicating some medical disorder, but without the usual focus and emphasis on pain under the breastbone.

CONGESTIVE HEART FAILURE

Statistically, congestive heart failure accounts for the largest group of persons with such overlooked or initially overlooked myocardial infarction. An acute attack of left ventricular failure, rather than pain in the chest, may indicate the onset of acute myocardial infarction. The first appearance of congestive failure in a person who hitherto has had no signs or symptoms indicating it, or an aggravation, exacerbation or recurrence of congestive failure may mark the occurrence of a myocardial infarct. Thus, severe attacks of dyspnea or orthopnea, or the occurrence of peripheral edema in a person who has no complaint of pain in the chest may be the only indication that a myocardial infarct has occurred. This may be verified by an electrocardiogram, or it may be verified at death when someone has died in an acute attack of congestive failure.

ANGINA PECTORIS

The second masquerade is ordinary, classical angina pectoris. For patients who are accustomed to attacks of angina, there is no difference between one of their attacks and another. Infarction occurs in the classical circumstances of angina, but an infarct is indicated by the electrocardiogram, or after sudden or slow death it is revealed at autopsy. This may be true of somebody who has been followed very closely by his physician for a long time. The classical pathologic evidence of myocardial infarction may be found in someone who has had nothing but typical anginal pain occurring under predictable circumstances. In this clinical masquerade, a large infarct of the heart may occur in a patient who is conscious of no variation upon the ordinary, recurring theme of anginal pain.

REFERRED PAIN

Very rarely—probably in not more than one in 100 myocardial infarcts—there is only referred pain. The pain, paresthesia or dysesthesia is referred into the left arm, shoulder or hand, and is so intense that if precordial pain or retrosternal pain occurs, the patient fails to notice it. The patient comes in with a hurting hand or with a pain in the elbow. Or he feels that the arm is "paralyzed," or he senses something so wonderfully wrong with his arm and shoulder that he neglects to report the pain under the breastbone.

Another variant is provided by the patient who places distorted emphasis on referred pain, rather than on the more common central or retrosternal pain.

ARRHYTHMIA

A fourth variety is the arrhythmia that occurs alone, with no clue to anything else. As you know, with an acute heart attack the patient may have any form of arrhythmia—paroxysmal bundle branch block, multiple extrasystoles, auricular fibrillation or flutter. If he has many ventricular extrasystoles, we should take warning that he may go on to ventricular tachycardia, which is likely, in turn, to herald ventricular fibrillation. Then comes sudden death. Such arrhythmias characterize the plight of people who have myocardial infarction with classical pain; but occasionally one sees a patient who complains bitterly of palpitation and fluttering of the heart, and a feeling of pounding, or a feeling of the heart flopping over, but no pain at all. Patients have a great variety of ways of describing the somatic sensation of extrasystoles. The patients of whom I am speaking, however, will not tell you of any pain, even in response to close and careful questioning. So occasionally what turns out to be an acute myocardial infarct is not indicated by pain. Arrhythmia is the main and perhaps the only thing noted.

NEUROLOGIC SYMPTOMS

An important though not a very large group of patients have primarily neurologic symptoms. A patient may come in with a stroke, classical in all its features—monoplegia or hemiparesis. He may have convulsions, or he may have mental aberrations varying from confusion to mania and delirium. Among such patients it has been demonstrated that a few have no thrombus, embolus or cerebral hemorrhage. Instead, a patient with very narrow vessels which lead to a strategic part of the brain has quite another sort of trouble. When the heart attack occurs, cardiac output is reduced.

The patient approaches or verges on shock. Certain areas of the brain with narrow vessels are selectively deprived of blood, and the patient exhibits the clinical signs of hemiparesis or a hemiplegia.

A general practitioner or a neurologist who sees such a patient may be forgiven if he does not focus attention on the heart, for often he is unaware of the possibility of which I am speaking. This is particularly a problem if the patient exhibits an overwhelming neurologic change. What the physician sees appears to be simply a classical stroke. If one recognizes such a situation, and if he treats the heart attack appropriately, the patient may recover with no neurologic residue. Thus, we must be very careful in dealing with patients who seem to have classical examples of hemiplegia or stroke, because an occasional one of them—and such patients are rare, to be sure—may turn out to have this cardiogenic source for neurologic difficulty.

Ordinarily, if we recognize a myocardial infarct, we think of a subsequent stroke or a concurrent stroke as coming from the dislodgement of a ventricular mural thrombus. Most strokes in people with myocardial infarct occur from a concurrent thrombus, rather than from an independent and subsequent embolus, or from hemorrhage which occurs without etiologic connection with the myocardial infarct.

APPREHENSION AND NERVOUSNESS

Now for the sixth masquerade. There are rare patients who have no pain but have an overwhelming sense of apprehension and nervousness. People who have angina classically have a symptom which is called *angor animi*. This term designates a sense or feeling of imminent, impending or actual dissolution. Patients feel that they are dying. They do not just *think* they are dying; they are not necessarily afraid of dying; but they *feel that they are in the process* of dying. Obviously, no one who has not experienced this can tell what it is like. We can find it by means of careful questions asked at the right time.

Over and beyond this, there is a group—a small one—of people who, instead of having pain or any of those other problems with myocardial infarction, have an acute and overwhelming feeling of nervousness, apprehension and fear. This is real terror. I do not know how to explain it, but it is different from an ordinary anxiety attack.

OVERPOWERING WEAKNESS

There is another small group of patients in whom overpowering weakness may occur. They have symptoms of shock without feeling any pain in the retrosternal area or elsewhere. Another example of this weakness coming on acutely is seen in the syncopal attacks of Stokes-Adams fits or faints. These may characterize the onset of myocardial infarction.

"ACUTE INDIGESTION"

The next masquerade is what used to cause a mistaken interpretation of the acute, overwhelming pain, when instead of being fairly high under the breastbone, it was down in the epigastrium. This is the gastroenteric masquerade. The patient experiences what he thinks is acute indigestion while or after eating a big meal. The feeling of flatulence, pressure and pain is ascribed to dietary indiscretions, rather than to anything wrong with the heart. This is better recognized than some of the other situations I have referred to.

THE CRY OF "WOLF"

Occasionally a myocardial infarct may occur in a person who is obviously neurotic and who, indeed, may have a cardiac neurosis. The patient has used up all the complaints. He has pulled out the stops so regularly that nothing new that he may say registers with his physician. The cry "Wolf! Wolf!" no longer alerts the shepherd. The patient cannot describe a discomfort that is different or worse than those of which he has been complaining all along. Thus the doctor misses the diagnosis because the cry of "Wolf!" has gone up so many times that he simply cannot believe what the patient is trying to tell him.

TOTALLY SILENT MYOCARDIAL INFARCTS

There are examples of myocardial infarction which are totally silent. These happen in people who have been having regular and very comprehensive annual physical examinations, with electrocardiograms and "the works." At first, nothing mars their perfect record. Then, after a year, the classical findings of myocardial infarct have appeared between one year's examination and the next.

I have no idea how one can explain what has happened. But it does happen, and I think we have to recognize it. Perhaps there has been a slow attrition. Multiple miliary infarcts may have occurred in the area irrigated by a narrow vessel, and then have coalesced, knocking out a large mass of muscle.

Finally, I return to the myocardial infarcts that occur in people who cannot report symptoms—the mentally deranged, those disturbed by disease or by hemiplegia, and those who have various forms of language or speech difficulty, such as the deaf-mutes.

CONCLUSION

May I urge upon your attention the facts that not every pain in the chest means myocardial infarction, and that not every myocardial infarct makes itself known to its victim and to you, the physician, by the ordinary and by far the commonest sign, which is a variation on the classical theme of the pain in angina pectoris.

These Iowans have had encouraging responses to their use of antimetabolites in cancer therapy, though they don't yet have statistically significant results to report. They think their continuous administration of this material is preferable to the intermittent technic formerly used.

Continuous Intra-Arterial Infusion of Antimetabolite in Head and Neck Cancer

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ALTHOUGH INTRA-ARTERIAL infusion in the treatment of cancer is of relatively recent origin, it already has a history. In 1946, intra-arterial infusion of vasodilators was popular in the treatment of peripheral vascular disease. Klopp[1] reported his results with the use of intra-arterial nitrogen mustard in 1950. Sullivan[2] reported the first cases in which continuous intra-arterial antimetabolite infusion was used for the treatment of cancer. The experience at this hospital dates back to December, 1960. During the ensuing months, approximately 20 infusions have been accomplished.

The word *infusion* has been purposely chosen to distinguish this type of therapy from perfusion. *Infusion* ordinarily means the introduction of a therapeutic drug into a vein or artery by means of gravity flow. In the present technic, the use of gravity is not practical, however, since the medication must be forced into the arterial system against systolic blood pressure. Thus a more appropriate term might be *injection,* but since the word *infusion* has been associated with this type of technic, it is probably desirable to continue using it. Hence, when we speak of continuous intra-arterial infusion, we shall actually mean continuous intra-arterial injection.

RATIONALE

For an understanding of how intra-arterial infusion works, a knowledge of the mitotic cycle is essential (Figure 1). During a cycle, which lasts a variable length of time, much of the metabolic activity takes place during the stages known as metaphase and anaphase. In a rapidly dividing neoplasm, the cells will be in various stages of mitotic development. If the metaphase is the most vulnerable stage for the cell treated with an antimetabolite, it is necessary to offer the drug to the cell then. Continuous intra-arterial infusion of a cancericidal drug over a period of five to eight days will expose most of the cells to the drug sometime during the metaphase. Infusing a cancericidal drug into an isolated arterial area is an excellent method of delivering a high concentration of drug to a tumor. The simultaneous intramuscular administration of the metabolite, thus saturating the vulnerable tissues (bone marrow and gut), creates active competition with the antimetabolite for a position in the metabolism of the normal cells. In-

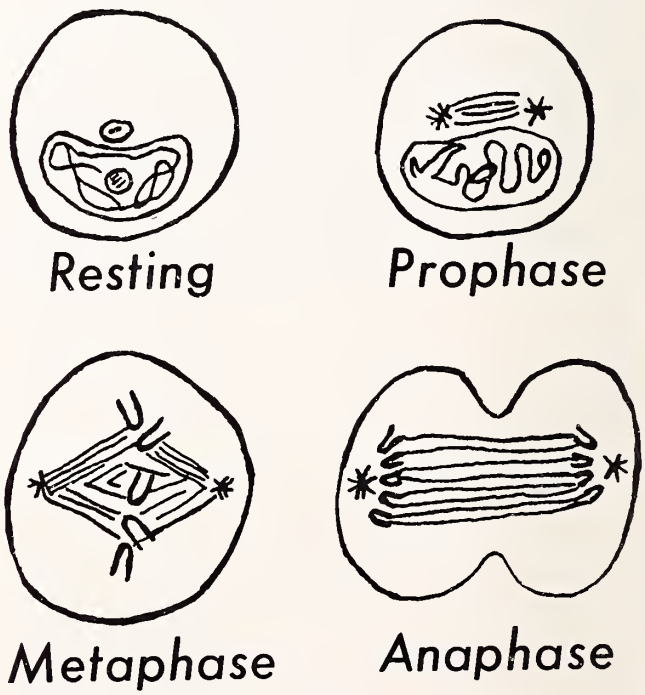

Figure 1. Phases of mitotic cycle.

The authors are staff members of the surgical services of the Veterans Administration Hospital and the State University of Iowa, in Iowa City, and are members of the Adjuvant Cancer Chemotherapy Infusion Study Group.

jection of antimetabolite and metabolite at the same time is effective only if the "neutralization" occurs essentially outside of the infused body part.

CHEMOBIODYNAMICS

The drugs generally available for the treatment of cancer today fall into four groups:[3] (1) *The antibiotics,* of which Actinomycin D is a prototype. This drug is effective in the treatment of Wilms's tumor and carcinoma of the testicle. (2) *The steroids.* The prototype of these is prednisone, which has been used effectively in the leukemas and lymphosarcomas. (3) *Alkalating agents,* of which nitrogen mustard is representative. This drug has been used in the treatment of almost all types of tumors. It has been particularly popular in the surgical adjuvant treatment of carcinoma of the lung. (4) *The antimetabolites,* which have gained popularity in the treatment of cancer. Amethopterin (Methotrexate) is the antimetabolite most widely used. Other antimetabolites which are useful in colon cancers are 5-FU and 5-FUDR.

A metabolite is a substance utilized by the cell to maintain its viability. An analogue of a drug is a substance that is quite similar to the parent substance. Certain antimetabolites are analogues of metabolites. The cell needs certain metabolites to carry on its functions, and when the cell is offered a substance that is very similar to the metabolite, it may be incapable of distinguishing the antimetabolite (analogue) from the essential parent substance (metabolite). If the cell accepts the antimetabolite, it may die. A quick glance at the chemical structures of folinic acid and aminopterin does not at first reveal any striking differences between them[4] (Figure 2). The essential dissimilarity is the substitution, in folinic acid, of an amino group for a hydroxyl group at the four position. This makes amethopterin an analogue of and an antagonist to folinic acid.

A knowledge of the biogenesis of folic acid is pertinent to an understanding of the site of action of the antimetabolite.[5] This leads us to a study of the homologous series of substances, starting with the pterins (Table 1). The word *pterin* means wing, and the term is appropriately chosen because the first pterins were extracted from butterfly wings. The next step in this homologous series

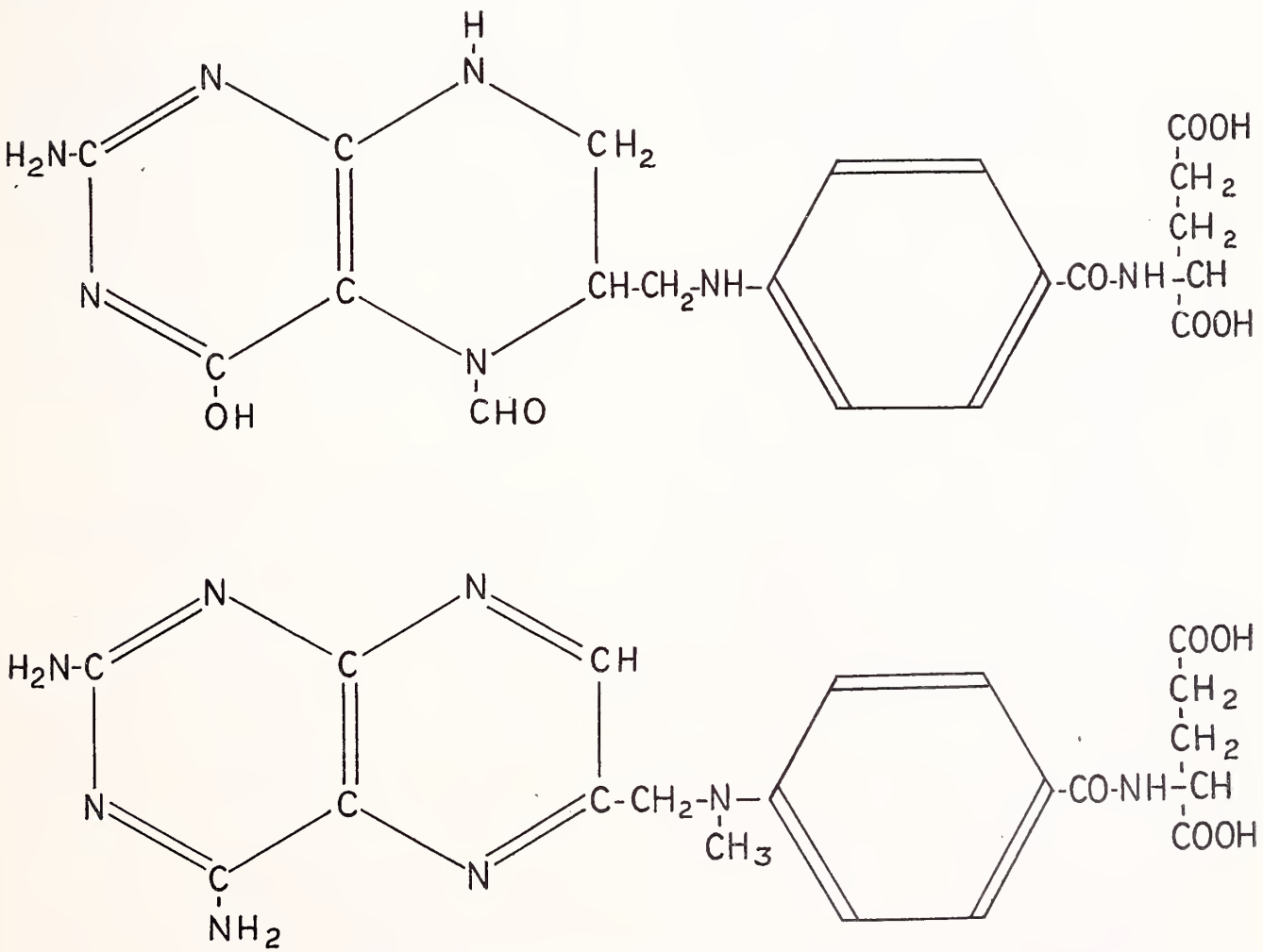

Figure 2. Chemical structures of folinic acid and amethopterin.

leads us to pteroylglutamate, which is found universally in plants and microorganisms. One step further leads us to pteroylglutamic acid, which is another name for folic acid (PGA). The next chemical substance in this series is folinic acid which is also called the citrovorum factor. The latter was named for the bacterium leuconostoc citrovorum, a bacterium which uses folinic acid in its metabolism and which was used to assay folinic acid. Folinic acid is necessary for the completion of purine ring synthesis, and it is at this point that the antimetabolite Methotrexate competes with the normal metabolite folinic acid.[6] If the antimetabolite is accepted into the cell, the purine ring synthesis fails, and there is a disruption of deoxyribonucleic-acid synthesis. Folic acid got its name from the Latin word *folium,* which means leaf. It was found that spinach leaf is a good source of folic acid.

TECHNIC

Some knowledge of the vasculature of the head and neck is prerequisite to the use of the technics to be described. Exposure of the major trunk of the external carotid system can usually be accomplished under local anesthesia. A transverse incision is made in the upper neck, extending from the midline to the sternocleidomastoid muscle. The common carotid and its bifurcation into the external and internal carotid arteries are then exposed. The first branch of the external carotid artery is usually the superior thyroid.

There are a number of ways of placing the catheter in the external carotid system (Figure 3). The choice of catheter may vary, but the one recommended is made of polyethylene and has an internal diameter of .023 inches, it will pass through an 18-gauge needle, and it accepts a 23-gauge needle into its lumen. One of the technics we have used is to put the catheter directly into the external carotid artery, after proximal ligation. Several ligatures are usually placed around the vessel and catheter. The superior thyroid vessel is a convenient branch through which to introduce the catheter into the lumen of the external carotid system. There is considerable variation in the origin of the superior thyroid, both as to the parent vessel and as to the angle of "take-off." The superior thyroid may arise from the common carotid, or there may be essentially a trifurcation (internal and external carotid, superior thyroid) arrangement.

Although the superior thyroid is an attractive site for catheter insertion, its use may predispose to malposition of the catheter shortly after placement. The usual malposition is displacement into the internal carotid system. Care should be taken not to advance the catheter too far into the external carotid artery for fear of by-passing one of the branches that supplies the tumor. After passing the catheter proximally through a slit in the side of the superior thyroid artery, one ligates the vessel onto the catheter.

Other branches of the external carotid system have been employed. One which is frequently used is the superficial temporal artery. The surgeon can isolate it opposite the tragus of the ear, and can introduce a catheter retrograde (Figure 3). It is occasionally difficult to introduce a catheter through this branch, probably because of the tortuousity of this vessel and the manner in which the side branches "take off." We have been successful in about 50 per cent of our attempts to intubate the external carotid system through the superficial temporal artery.

Some surgeons intubate the external system via the common carotid. Sullivan,[7] at present, uses a catheter swaged on a needle, introduces it into the common carotid, and then directs the needle into the external carotid, pulling the needle through the external carotid, cutting the catheter free of the needle and retracting it into the lumen of the external carotid.[2] In some instances where one desires to introduce the catheter through the common carotid, he can do it with a needle through which the catheter is advanced into the external carotid system. Any bleeding from the needle puncture site can easily be controlled with sutures of 6-0 arterial silk.

Following the intubation of the arterial tree and before infusion is begun, it is essential that the cannula be properly placed. The technic of injecting a fluorescent solution into the cannula and studying the distribution of blood with ultraviolet light gives precise information as to the possibility of perfusing the tumor site. Since the introduction of this technic, angiography has been of limited value.

The infusate must be put into the arterial tree with a device which will generate a pressure at least as high as the systolic pressure of the pa-

TABLE I

BIOGENESIS OF FOLIC ACID

Pterins—butterfly wings
Pteroylglutamate—plants and micro-organisms
Pteroylglutamic acid Folic acid P.G.A.
Folinic Acid Citrovorum factor Leuconostoc citrovorum
Folinic acid antag. Methotrexate
Purine ring synthesis
D.N.A. Metaphase of cell

tient. There are a number of pumps available, most of them so designed that some back flow occurs into the tip of the catheter during some part of the cycle. The most desirable type of pumping mechanism would be a truly continuous one that would not allow any blood to flow back into the catheter, but no presently-available pump seems to be ideal.

The main problem is one of accurate flow rates. We have used a variety of pumps including finger pumps, roller pumps, and two types of piston pumps. One of the latter (Unita) is quite desirable in that it is nearly a continuous-flow type (reciprocating syringes), it is silent, and its flow rate can be "dialed." The pump we are currently using* is of basic "finger" design which can accommodate two pumping chambers. It is low in cost and utilizes a regular intravenous setup for the pumping chamber.

The infusate is placed in two bottles arranged in tandem. The drug (Methotrexate) is stable enough to last at least 48 hours, and 10-20 mg. of heparin is placed in each bottle. The tandem bottles are used to prevent any inadvertent pumping of air into the system, for air in the system can lead to serious consequences, especially when the catheter has been purposely placed in the internal carotid or has slipped out of its place in the external and into the common or internal carotid.

Some of the problems involved in the surgical technic or immediately after placement of the catheter are as follows: (1) Leakage of the infusate may occur around the catheter. Tube fracture may result from clamping the catheter with a hemostat. (2) Displacement of the catheter into the common carotid may occur, and this negates the infusion if the tumor is in the distribution of the external carotid system. (3) Early postoperative accidental extubation of the catheter into the subcutaneous tissues has taken place. Subsequent infusion of the Methotrexate solution into the subcutaneous tissues has not led to any specific complication. (4) Though heparin is used, plugging of the catheter may at times be a problem. This is the reason why it has been suggested that a continuous infusion be employed, rather than the cycling type which is in vogue at present. Many of the patients in our series have had previous surgery in the neck and/or radiation therapy. Consequently, exposure of the vessels can be very difficult, and at times impossible. Dislodgment of the catheter from the vessel has occurred any time from the immediate postsurgical period to two or three days later. No serious bleeding has resulted.

* Designed by Professor S. Collins, of Massachusetts Institute of Technology, and Drs. Osborne and Barsamian of the Fifth (Harvard) Surgical Service, Boston City Hospital, and available through Andonian Associates, Waltham, Massachusetts.

DOSAGE

Usually a total dose of 350 to 400 mg. of Methotrexate is administered. This is divided into daily

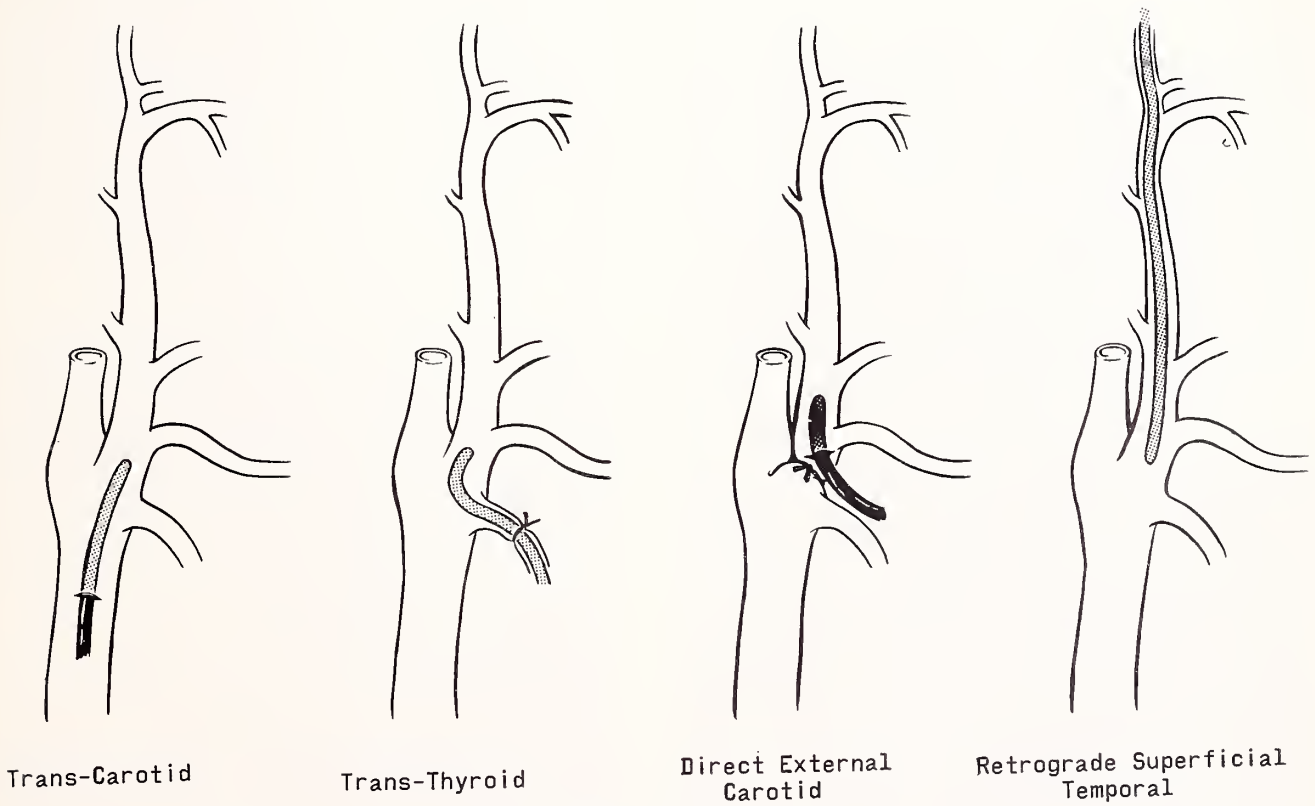

Figure 3. Various cannulation sites.

50 mg. doses, and is usually administered in 1,000 cc. of normal saline or of 5 per cent dextrose in water. The rate of infusion is regulated so that each day the patient gets approximately 1,000 cc. of fluid plus the antimetabolite. The metabolite known as citrovorum factor is given intramuscularly in doses of 3 to 9 mg. every three to six hours. Since the effect of the antimetabolite may persist for approximately 24 hours following the cessation of infusion, it is advisable to continue the administration of metabolite (citrovorum factor) for at least that period of time.

TOXICITY

Because, primarily, the antimetabolite attacks rapidly-dividing cells, it is not surprising that the bone marrow and the gastrointestinal tract may show manifestations of drug toxicity. There can be a local toxic effect in the form of unilateral stomatitis, which is a sign of an adequate dosage level. During the infusion, daily white blood cell counts and platelet counts are done. It is seldom necessary to decrease or stop the infusion because of generalized toxicity. We should, however, be concerned if the white blood cell count fell below 2,000 and the platelet count fell below 50,000/cc. Diarrhea may occur, but it has not been a problem. Patients with renal disease should be watched carefully for signs of toxicity, for the drug is eliminated through the kidneys, and toxic levels may be reached rapidly with conventional dosage schedules.

SELECTION OF PATIENTS

We have not reached a point yet where patients are treated primarily with chemotherapy. The conventional methods—either surgery, x-ray or combinations thereof—have usually preceded any attempt to use infusion. Not infrequently, it is found that a primary unilateral lesion has become midline upon recurrence, necessitating bilateral external-carotid infusions. It should be emphasized that it is frequently impossible to deliver the drug to a recurrent or persistent tumor because of the effects of previous x-ray or surgery, or both.

RESULTS

It is too early to analyze our results statistically. Adequate photographic evidence has been difficult to obtain because the majority of the treated tumors have been intra-oral and relatively inaccessible. We have attempted 20 infusions, some of which were unsatisfactory because of maldistribution of the drug. We have noted the following changes in the lesion: (1) *Slough of tumor.* This occurred frequently, and the tumor and the tumor bed appeared clean. (2) *Regression of tumor.* This was definite in three cases. (3) *Palliation.* In some patients this was manifested by decrease in pain and decreased difficulty in swallowing. (4) *Disappearance of the lesion.* In two cases the lesion was not evident for as long as six months. Sullivan[8] has several long-term survivals in his series.

DISCUSSION

Continuous hypogastric infusion has been done for carcinoma of the bladder, prostate, and cervix.[8] We have used this technic for carcinoma of the bladder, and it can easily be accomplished through bilaterial retroperitoneal approaches. We plan to use combined antimetabolite therapy, alternating a purine antagonist with a pyrimidine antagonist.

Several cases of primary brain tumor have been infused, but the benefits have not been striking; however we have noted some very definite changes in the histologic tumor pattern in the brain following infusion. One patient who was infused had a metastatic brain tumor causing paralysis of the left upper extremity. Following several days of infusion, he regained considerable motion in the paralyzed extremity. It should be mentioned that some of the results observed might be related to systemic Methotrexate therapy. A paper recently presented at the Second Conference on Experimental Clinical Cancer Chemotherapy indicated that Methotrexate is efficient when administered systemically.

SUMMARY

The results of intra-arterial antimetabolite infusion have been encouraging. This technic may be utilized more frequently when more effective drugs have been obtained. In time, this may be used as the primary treatment of selected cancers, rather than as the last-resort management. Complications from this procedure should be few after adequate experience has been gained, with technics on the one hand, and drug effects on the other. Care should be exercised in applying this treatment, for it must still be regarded as an investigative tool.

REFERENCES

1. Klopp, C. T., and others: Fractionate intra-arterial cancer; chemotherapy with methyl bis amine hydrochloride, preliminary report. Ann. Surg., **132**:811-832, (Oct.) 1950.
2. Sullivan, R. D., Miller, E., and Sikes, M. P.: Antimetabolite combination cancer chemotherapy; effects of intra-arterial methotrexate-intramuscular citrovorum factor therapy in human cancer. Cancer **12**:1248-1262, (Nov.-Dec.) 1959.
3. Burchenall, J. H.: Current status of clinical chemotherapy. Current Research in Cancer Chemother. Rep. No. 4, (Feb.) 1956.
4. Walpole, A. L., and Spinks, A.: Symposium on the Evaluation of Drug Toxicity. Boston, Little, Brown and Company, 1958.
5. White, A., Handler, P., Smith, E. L., and Stetton, De W.: Principles of Biochemistry, Second Edition. New York, McGraw-Hill Book Company, 1959.
6. Montgomery, J. A.: Relation of anti-cancer activity to chemical structure; review. Cancer Research, **19**:447-463, (June) 1959.
7. Sullivan, R. D.: Continuous arterial infusion cancer chemotherapy. Surg. Clin. North America, **42**:365-388, (Apr.) 1962.
8. Sullivan, R. D., *et al.:* Continuous infusion cancer chemotherapy in humans—effects of therapy with intra-arterial methotrexate plus intermittent intramuscular citrovorum factor. Cancer Chemother. Rep. No. 10, pp. 39-44, (Dec.) 1960.
9. Huseby, R. A., and Downing, V.: Use of methotrexate orally in treatment of squamous cancers of head and neck. Cancer Chemother. Rep. **16**:511, (Feb.) 1962.

To date, these doctors say, polycythemia has been found only a very few times in association with carcinoma of the liver.

Carcinoma of the Liver, Hemochromatosis, And Polycythemia: A Case Report

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The association of various neoplasms with polycythemia has been noted with increasing frequency in the past 30 years. Bliss,[1] in studying polycythemia vera, encountered a case associated with a hypernephroma. The possible causal relationship of renal tumors and polycythemia was first pointed out by Forssell,[2] who reported four cases. Further interest was stimulated, in recent years, by the isolation of erythropoietic factors from the blood, the kidney, and possibly other organs. At the present time, polycythemia has been described in association with the following disorders: benign and malignant tumors of the kidneys; polycystic kidneys; hydronephrosis; uterine fibroids; brain tumors; myxoma of the atrium; parathyroid adenoma; pheochromocytoma; ovarian tumors; and Cushing's syndrome.[3–10]

The association of primary carcinoma of the liver with polycythemia was first pointed out by McFadzean *et al.*[9] in 1958. The first case described in this country was included in a study of primary carcinoma of liver by Warren, *et al.* in 1951. Their case No. 11 showed a red cell count of 7,050,000/cu. mm. and was probably polycythemic, although no further details were available. At present, the literature on this subject includes three other case reports.[10, 11, 12] Since the combination is still rare, or is unrecognized the following case report is of interest.

CASE REPORT

B. H., a 76-year-old, white retired printer, was admitted for the first time to the Iowa City Veterans Hospital on November 9, 1960, with chief complaints of progressive weakness, abdominal discomfort, and edema of three months' duration. Five years prior to admission, the patient had been found to have diabetes mellitus, and was placed on 26 units of insulin daily. He failed to follow a dietary regimen, however, and was seen infrequently by his private physician. He was apparently well until three months before admission, when he developed progressive weakness, swelling of the abdomen and weight loss. These phenomena were followed shortly by edema of the legs and scrotum. The patient's private physician discontinued insulin one month before he was admitted to the Veterans Hospital, and started him on digitalis and chlorothiazide for his edema. There was no history of jaundice, alcoholism, or exposure to poisons.

Physical examination on admission showed the patient to be a chronically ill but alert man. His skin was of a reddish, sallow color. Spider angiomata were seen over the upper part of his body. Both hands showed palmar erythema. The neck veins were distended. There were crepitant rales in the bases of both lungs, posteriorly. The left border of cardiac dullness extended two centimeters beyond the midclavicular line. The heart sounds were of good quality, with a soft systolic murmur at the base. The abdomen was distended by ascitic fluid. The liver was palpable two fingerbreadths below the costal margin. There was a nodular mass, four fingerbreadths below the xiphoid, which moved with respiration and seemed continuous with the liver. There was no splenomegaly. The scrotum and the lower extremities were markedly edematous.

Laboratory examinations showed the urine to be 1+ for protein and sugar. The hemoglobin was 19.7 Gm./100 ml.; the hematocrit 65 per cent; the white blood cell count 7,100/cu. mm.; and the platelets 152,000/cu. mm. A bone marrow smear showed mild myeloid and erythroid hyperplasia. The blood urea nitrogen was 12 mg./100 ml. Fasting sugar was 148 mg./100 ml.; and morning and evening two-hour postprandial blood sugars were 126 and

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232 mg./100 ml., respectively. The bilirubin was 1.5 mg./100 ml. Total protein was 5.5 Gm./100 ml., and the albumin-globulin ratio was 3.3/2.2. A bromsulphalein test showed 42 per cent retention in 45 minutes. Cephalin flocculation was 3+ and alkaline phosphatase was 13.4 Bodansky units. An electrocardiogram was normal. Chest x-ray showed elevation of both hemidiaphragms, with plate-like atelectasis at both lung bases. The heart was of normal size. An upper gastrointestinal series and an esophagram were normal.

The patient was given a 2,000-calorie, low-sodium diabetic diet with multiple-vitamin supplements. The digitalis was continued. His diabetes was easily managed on the diet, without insulin. Repeated blood examinations showed the hemoglobin and hematocrit to be consistently elevated (Table 1). Between November 17 and December 13, five phlebotomies were done, with the removal of 2.2 L. of blood. The edema persisted despite attempts at diuresis.

In early January, 1961, the patient became jaundiced and confused. On January 4, the total bilirubin was 5.2 mg./100 ml., and the direct was 2.6 mg./100 ml. The total protein was 5.7 Gm./100 ml., and the albumin-globulin ratio was 2.9/2.8. The alkaline phosphatase was 20.3 Bodansky units. Hepatic coma developed, with flapping tremors and hallucinations. The patient became oliguric and uremic, and died on January 27, 1961.

At postmortem examination, the liver weighed 1,900 Gm. The left lobe had been replaced by greenish-yellow tumor nodules. The tumor had also invaded the portal vein and extended throughout the liver. Metastases were found in the vascular channels in the lung. Microscopic sections showed the tumor to be a primary carcinoma of the hepatic cells. There was also marked portal fibrosis. Hemosiderin deposition was prominent in the hepatic cells. Severe fibrosis and hemosiderin deposition were present in the pancreas.

Final Diagnosis: Hemochromatosis; diabetes mellitus; malignant hepatoma with vascular invasion and metastasis to the right lung; and secondary polycythemia (clinical).

Comment: In the absence of cardiopulmonary disease and evidence of hypoxia, the presence of polycythemia cannot be explained on that basis. The patient was edematous throughout his hospital stay, and at no time showed evidence of a dehydration that might have produced hemoconcentration. The clinical status of the patient made it highly unlikely that the plasma volume had decreased below normal. Therefore, the elevation of the hematocrit and hemoglobin was assumed to have been due to a true increase in the red cell mass.

DISCUSSION

It is well known that over 80 per cent of primary carcinoma of the liver is found in association with cirrhosis. The incidence of hepatic carcinoma in cases of Laennec's cirrhosis is about five per cent, and in cases of hemochromatosis it varies from five to 20 per cent in different series. Advanced Laennec's cirrhosis, hemochromatosis, and carcinoma of the liver are frequently associated with an anemia that is attributed mostly to gastrointestinal blood loss. The association of polycythemia with cirrhosis was described by Mosse in 1914, though it is thought by Wintrobe to have been coincidental. The association of polycythemia with hemochromatosis had not been noted, although the hemoglobin range in a review by Kleckner *et al.* in 1955 extended from 2.5 to 17.2 Gm./100 ml.; and in a review by Sheldon in 1935, one case showed a red cell count of 6.5 million. Since elevated erythrocyte values have rarely been associated with Laennec's cirrhosis and hemochromatosis, it is tempting to speculate that the polycythemia is associated with primary carcinoma of the liver. Only McFadzean[9] has studied the incidence of hepatoma and polycythemia with liver cell carcinoma. He reports an elevated red cell mass, defined as an increase of more than two standard deviations above normal,

TABLE 1

LABORATORY FINDINGS

Date	Body Weight (lbs)	Hemoglobin (Gm/-100 ml)	Hematocrit (per cent)	Phlebotomy (cc)	Remarks
11- 9-60	138	19.7	65		
11-14-60	135				Mercuhydrin 2 cc
11-15-60	134	18.2	64		
11-17-60				200	
11-18-60				500	
11-21-60		17.2	60		
11-29-60		17.7	61	500	
12- 2-60	134	17.8	57		
12- 6-60					Mercuhydrin 2 cc
12- 7-60	129	17.8	58		
12-12-60	130	21.0	68	500	
12-13-60				500	
12-15-60					Mercuhydrin 2 cc
12-16-60	126	14.2	52		
12-27-60		15.1	54		
1- 3-61		16.0	53		

in 17 of 28 patients and 11 of 20 patients with hepatoma, for an overall incidence of 58 per cent. The hemoglobin and red cell count were infrequently elevated because of the uniformly elevated plasma volumes.

To further assess the role of hepatoma as a cause of polycythemia, the role of the normal liver cells in erythropoiesis should be reviewed, because it would be reasonable to suppose that primary liver cell cancer could retain some of the function of the normal liver cells from which the tumor is derived. Certainly, the association of polycythemia with certain kidney diseases is aided by the isolation of an erythropoietic stimulating factor (ESF) which is produced in the kidney.[14] According to Linman,[14] this factor is thermolabile, is insoluble in ether, and is probably a mucoprotein. It acts to increase hemoglobin production, and stimulates the production of erythrocytic elements from myeloid reticulum cells. A second factor has been isolated and characterized as thermostable, soluble in ether, and probably a lipid. The site of its production is unknown. This factor increases the number of erythrocytes without increasing the hemoglobin or hematocrit.

Attempts to demonstrate the elaboration of an erythropoietic factor outside the kidney have produced controversial results. Many authors[15] have found evidence for an extrarenal ESF in nephrectomized animals. Others, however, have failed to find evidence of ESF in nephrectomized animals[16] It is not surprising that evidence for extrarenal ESF is so conflicting, in view of the inherent difficulties and lack of standardization in the bio-assay of ESF. Recent evidence, however, would seem to confirm the presence of two erythropoietic factors, one produced in the kidney, and the other produced in an extrarenal site.

The present information concerning the role of the liver in erythropoiesis is scanty and largely indirect. The most significant evidence has been the studies of Jacobsen, *et al.*[17] and of Mirand and Prentice,[18] who found enhanced erythropoiesis in animals with damaged livers. They have proposed that the damaged liver fails to inactivate the ESF produced in the kidney. Many authors have indicated that the liver is the most likely site of production of the extrarenal ESF, and some[19] have suggested that the liver may secrete an inhibitor of an anti-ESF.

Polycythemia or increased ESF has not been associated with cirrhosis or hemochromatosis. The association of polycythemia and hepatoma has been studied by McFadzean, and the three additional reports suggest that the two diseases may be related. So far, neither isolation of ESF nor removal of a hepatoma has been attempted in any of the reported cases of hepatoma.

SUMMARY

The case report of a man with polycythemia, hepatoma, and hemochromatosis has been presented. A causal relationship between the hepatoma and polycythemia can only be implied. The association of polycythemia with various tumors, especially of the brain and kidney, has become evident enough so that such tumors should be considered in patients with polycythemia of unkown etiology. Until better knowledge of the factors that regulate erythropoiesis becomes available, this association should be looked for, and primary liver carcinoma should be included in the evaluation of a patient with polycythemia of unknown etiology.

REFERENCES

1. Bliss, T. L.: Basal metabolism in polycythemia vera. Ann. Int. Med., **2**:1155-1161, (May) 1929.
2. Forssell, J.: Polycythemia and hypernephroma. Acta med. scandinav., **150**:155-166, 1954.
3. Thomson, A. P., and Marson, F. G. W.: Polycythemia with fibroids. Lancet, **2**:759-760, (Oct. 10) 1953.
4. Carpenter, G., Schwartz, H. G., and Walker, A. E.: Neurogenic polycythemia. Ann. Int. Med., **19**:470-481, (Sept.) 1943.
5. Levinson, J. P., and Kincaid, O. W.: Myxoma of right atrium associated with polycythemia; report of successful excision. New England J. Med., **264**:1187-1192, (June 8) 1961.
6. Coster, C.: Renal polycythemia; case of primary hyperparathyroidism associated with nephrocalcinosis and erythrocytosis. Acta med. scandaniv., **170**:191-194, (Aug.) 1961.
7. Bradley, J. E., Young, J. D., Jr., and Lentz, G.: Polycythemia secondary to pheochromocytoma. J. Urol., **86**:1-6, (July) 1961.
8. Kepler, E. J., Doherty, M. B., and Priestley, J. T.: Adrenal-like tumor associated with Cushing's syndrome (so-called masculinovoblastoma, luteoma, hypernephroma, adrenal cortical carcinoma of ovary), Amer. J. Obst. & Gynec., **47**:43-62, (Jan.) 1944.
9. McFadzean, A. J. S., Todd, D., and Tsang, K. C.: Polycythemia in primary carcinoma of liver. Blood, **13**:427-435, (May) 1958.
10. Boivin, P., and Fauvert, R.: Malignant hepatoma with polyglobulia. Rev. Int. Hepat., **9**:769-775, 1959. (Fr.)
11. Schonfeld, A., Babott, D., and Gundersen, K.: Hypoglycemia and polycythemia associated with primary hepatoma. New England J. Med., **265**:231-233, (Aug. 3) 1961.
12. Escobar, M. A., and Trobaugh, F. E.: Erythrocythemia. M. Clin. North America, **46**:253-276, (Jan.) 1962.
13. Kan, Y. W., McFadzean, A. J. S., Todd, D., and Tso, S. C.: Further observations on polycythemia in hepatocellular carcinoma. Blood, **18**:592-598, (Nov.) 1961.
14. Linman, J. W., and Bethell, F. H.: Factors Controlling Erythropoiesis. Springfield, Illinois, Charles C Thomas, 1960.
15. Osnes, S.: Experimental study of erythropoietic principle produced in kidney, Brit. M. J., **2**:650-658, (Oct. 10) 1959.
16. Erslev, A. J.: Erythropoietic function in uremic rabbits. Arch. Int. Med., **101**:407-417, (Feb.) 1958.
17. Jacobsen, E. M., Davis, A. K., and Alpen, E. L.: Relative effectiveness of phenylhydrazine treatment and hemorrhage in production of erythropoietic factor. Blood, **11**:937-945, (Oct.) 1956.
18. Mirand, E. A., Prentice, T. C., and Slaunwhite, W. R.: Current studies on role of erythropoietin on erythropoiesis. Ann. N. Y. Acad. Sci., **77**:677-702, (June 25) 1959.
19. Reissman, K. R., Nomura, T., Gunn, R. W., and Brosius, F.: Erythropoietic response of anemia or erythropoietin injection in uremic rats with or without functioning renal tissue. Blood, **16**:1411-1423, (Oct.) 1960.

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Clinical Pathologic Conference

SUMMARY OF CLINICAL FINDINGS

A 68-YEAR-OLD WHITE WOMAN was seen here first in 1951 because of arterial hypertension. Subsequently she was on antihypertensive drugs, most recently Raudixin, 50 mg. daily, and Hydrodiuril, 50 mg. daily. In 1961, a diagnosis of arteriosclerotic heart disease was made, but otherwise she was healthy. In October, 1961, she was hospitalized at S.U.I. for an acute thrombophlebitis of the left leg which responded to conservative therapy. The episode of phlebitis had come on suddenly, manifested by pain in the left calf radiating to the left ankle. The leg became red, warm, swollen and tender to the touch. There was no previous history of injury, and no evidence of cardiorespiratory difficulty.

At that time she had a blood pressure of 190/90 mm. Hg, and a pulse of 80 beats/min. Other physical findings included an enlarged, nodular thyroid, especially in the left upper pole. The left calf was edematous, with heat and erythema posteriorly. There was a trace of bilateral pedal edema. The chest radiograph was within normal limits, and the hemoglobin level was 13.6 Gm. The white blood count was 7,000/cu. mm., with a normal differential, and the urinalysis was unremarkable. The bleeding time was 3 minutes, the clotting time, 6 minutes, and the fasting blood sugar was 65 mg. per cent. The protein-bound iodine was 5.3 micrograms per cent, and I-131 uptakes were 10 and 25 per cent in 4 and 24 hours, respectively. The blood urea nitrogen was 20 mg. per cent, and the creatinine was 0.9 mg. per cent. The electrocardiogram in October showed evidence of an old myocardial infarct. She was discharged from the hospital and directed to continue her antihypertensive drugs.

Her final admission to S.U.I. Hospitals was on June 1, 1962, at 9:45 a.m. It was very difficult to obtain a history from the patient because of her obtunded condition, and most of the information came through a telephone conversation with her local physician. Two days earlier, at 9:00 p.m., she had fallen and had bumped her left lower thoracic area. On May 31 she had had soreness over the lower ribs on the left side, and on the afternoon of that day, she had become very weak immediately after having a bowel movement. For the remainder of the day she had no difficulty, except for some continued soreness on the left side. On the morning of admission she was found to be ill by the attendants at the home where she lived. At about 7:30 a.m. it was found that she was tender in the epigastrium, nauseated, and cold and clammy, and that her temperature was 100°F. rectally, and her blood pressure was 102/80 mm. Hg. She had not taken her antihypertensive drugs that morning, but it was known that her normal recent blood pressure had been 180/90. The local physician thought that she might well have a ruptured spleen, so he called for an emergency admission appointment, and the patient left immediately for the University Hospitals. She received morphine sulphate, grains ¼ intramuscularly, before departing on the 70-mile journey.

At admission, her pulse was 120/min. and thready; her respirations were 24/min. and deep; and her blood pressure was unobtainable. Her general condition was one of considerable distress, with dyspnea, cyanosis about the face, marked thirst, and a cold sweaty skin. Aside from these, the only pertinent physical findings included tenderness in the epigastrium and left upper abdomen, but none over the ribs. There were no bowel sounds heard, and no masses or organomegaly.

The immediate impression was that of vascular collapse, probably on the basis of a splenic rupture. Cut-downs were placed in her ankles and she was given 500 cc. of dextran as blood was being cross-matched. There was no change in her condition, despite a Trendlenburg position. The femoral pulses were palpable. Blood was started, and four quadrant taps of the abdomen were done. An emergency electrocardiogram showed an old posterior myocardial infarct, but nothing recent. When one unit of blood did not seem to alter her condition, it was decided to give her two grams of intravenous Aramine. There was an immediate response, with elevation of the blood pressure to 160/100 mm. Hg, and a pulse of 120/min. A specimen of blood drawn at approximately 10:30 a.m. revealed a hemoglobin of 15 Gm. per cent, and a white blood count of 26,500/cu. mm., and a hematocrit of 50 per cent. A urinalysis was within normal limits.

A nasogastric tube was inserted, and only a small amount of normal appearing gastric juice was obtained. Her blood pressure remained stable for approximately 20 minutes, and it was decided that she could be moved across the hall to the

x-ray room. A postero-anterior view of the chest was taken. Some gastrografin and sodium bicarbonate with air was put through the nasogastric tube to determine the gastric outline. While awaiting the development of these radiographs and while on the x-ray table, the patient had a cardiac arrest which responded temporarily to extrathoracic cardiac massage, positive-pressure oxygen and some intracardiac Adrenalin. An electrocardiographic monitor showed runs of multifocal PVC's and one long run of paroxysmal ventricular tachycardia.

After three more episodes of cardiac arrest and successful transient resuscitations, a fourth arrest proved fatal and at 12:01 p.m. she was pronounced dead, 2¼ hours after admission.

SUMMARY OF CLINICAL DISCUSSION

Dr. S. E. Ziffren, Surgery: Dr. Liechty will analyze this case and will attempt to arrive at the diagnosis.

Dr. R. D. Liechty, Surgery: In summary, this 68-year-old white female had had a 10-year history of treated hypertension. She had been on two medications most of this time, Hydrodiuril and Raudixin. Her last hospitalization was 8 months prior to her final and fatal hospitalization, at which time she had thrombophlebitis. At that admission, the electrocardiogram showed an old myocardial infarct. Two days before her last admission, she had suffered some injury to the left chest, but we know little about it. Apparently it had not been serious, since crepitation was not felt by the admitting physician. Perhaps the chest roentgenograms will help with this point. The day before admission, the patient became very weak following a bowel movement and the accompanying increase in intra-abdominal pressure. She was admitted, and died just over two hours after her arrival here.

She was in shock or unresponsive the entire time she was in the hospital. The only really positive physical finding other than the picture of shock was left upper quadrant and epigastric tenderness. I would like to see the x-rays, Dr. Van Epps.

Dr. Eugene Van Epps, Radiology: An anteroposterior upright film of the chest in this obese woman, taken on her previous admission in 1961, is shown in Figure 1. The lungs are generally hypoventilated, but without evidence of parenchymal infiltration in the visualized portions of the lung. The lateral film, not shown, revealed no infiltration behind the heart. In the area of the azygos vein, there is a calcified lymph node. The next roentgenogram, taken just before death, is shown in Figure 2. Dr. Liechty, I am going to give you the report that was made on the film by our department, but I want you to know that I disagree with that report. Our report said this was a normal chest roentgenogram.

Dr. Liechty: Healthy chest both times?

Dr. Van Epps: That's what the report stated, but I disagree. If you will continue your discussion along the lines you have chosen, I'll come back to the film later.

Dr. Liechty: Thank you for telling me that she was obese, because that was one of the points about which I was going to ask. I think that I can build up a reasonably good case here for pul-

Figure 1. P.A. upright chest roentgenogram taken in 1961. It was interpreted as normal in the obese patient.

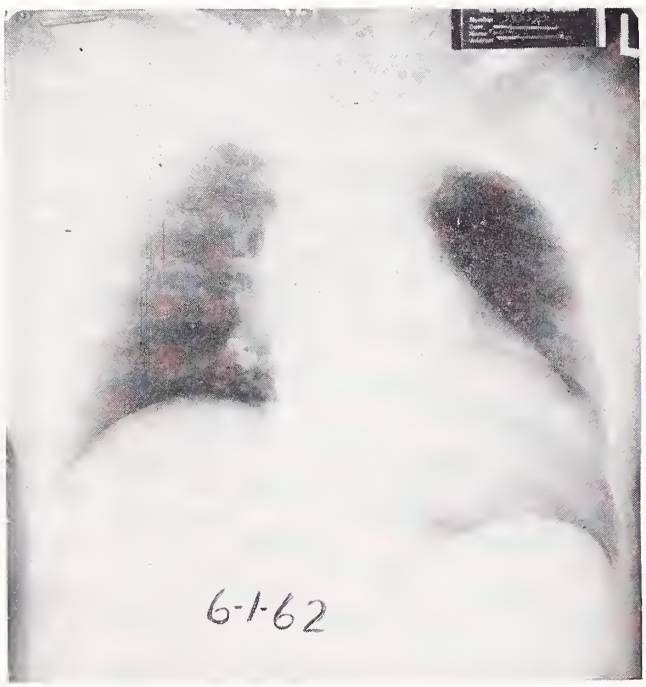

Figure 2. Roentgenogram taken at last admission. Note the ischemic lungs and the prominent right pulmonary artery, at this examination, due to massive pulmonary embolus without infarction of the lung.

monary embolus as the cause of death in this 68-year-old lady. In the first place, she had a history of phlebitis documented in this hospital. She had been in a nursing home, as we understand from the protocol, where she probably had been inactive, as so many patients are. She was advanced in age, and she was obese. The white cell count at her last admission was 26,000/cu. mm. Cyanosis and dyspnea were noted. I believe the straining at stool two days before admission is an important clue. I personally have had one patient who, postoperatively, developed a pulmonary embolus while straining at stool. Of course, this first episode did not kill the patient. However, according to Allen, Barker and Hines, if someone develops a pulmonary embolus, he has at least a 25 per cent chance of developing another and fatal pulmonary embolus. This patient's shock can be explained by the pulmonary embolus, and I am actually encouraged somewhat by Dr. Van Epps' comments about the chest, although in a large survey by Dr. Coon, at the University of Michigan, of all patients who died over a ten year period, it was found that the radiologist helped very little in the diagnosis of pulmonary embolus. This is not meant to disparage the Radiology Department, but there is usually not much specific found on the roentgenogram in this disease. Sometimes small emboli will show as a diffuse type of pneumonitis. The classical picture of pulmonary embolus is that of the wedge. Isn't that correct, Dr. Van Epps?

Dr. Van Epps: That is the way it is usually described, but seldom seen. One needs both posteroanterior and lateral projections, since it has been shown that infarcts may be obscured by the heart and by a high diaphragm. Pleural fluid is a frequent accompaniment.

Dr. Liechty: Her fall may have jolted her somewhat and dislodged a pelvic thrombus. The absence of signs and symptoms of thrombophlebitis is of little consequence, since most pulmonary emboli probably originate in pelvic veins. Four clinical factors—obesity, age, cardiac disease and immobility—are most important in presaging development of pulmonary emboli. Thrombosis in pelvic and leg veins set the stage for the subsequent emergence of pulmonary emboli.

Just in passing, let me say that I recall one young patient, 21 years of age, who was struck across the thigh by a large plank. He subsequently died of fat embolism with no fracture. In the literature, isolated cases of fatal fat emboli have been reported following comparatively minor trauma.

I don't believe, however, that fat emboli caused this patient's death. Dissecting aneurysm would be a good probability in this case. The patient had a history of arteriosclerotic disease. She was in an age group where aneurysms are not uncommon. She had abdominal pain. The abrupt onset is consistent. Sometimes these dissecting aneurysms will dissect intermittently; neurogenic shock may result.

This lady could have died from a dissecting aneurysm. If she had had an abdominal aneurysm, I should think that somewhere along the line someone would have palpated it, but she was obese and it can have been overlooked. A perforated viscus was suspected by the emergency-room physician. Raudixin and allied alkaloids can aggravate existing ulcers. She had been on this drug for somewhat over ten years.

In my experience with perforations, this would have to be a localized or lesser sac perforation because of localized pain. A perforated stomach with diffuse peritonitis will give boardlike rigidity and excruciating pain throughout the abdominal cavity. This patient's pain was limited to the upper part of the abdomen. Pain in the abdomen can result from chest pathology—for example, referred pain from pneumonia. A relative of mine died in the pre-antibiotic era after a surgeon had removed his appendix. He had right lower lobar pneumonia. Air was seen in the stomach but not in the peritoneal cavity. Dr. Van Epps, is that correct?

Dr. Van Epps: That is correct.

Dr. Liechty: Now the other possible diagnosis is intestinal infarction, which in my opinion is one of the most difficult diagnoses to pin down. In one patient on whom we operated, the entire small bowel and most of the colon were completely infarcted. For the next 24 hours prior to her death, she had little or no pain. In other patients the pain will be extreme. Because of these clinical variables, the diagnosis can be extremely difficult to make. We know this patient had arteriosclerosis. She could have knocked a plaque off a sclerotic vessel and developed a localized type of infarction in any organ in the upper abdomen. Myocardial disease should be considered, but we do have an unchanged electrocardiogram, and our Internal Medicine colleagues ruled this out as a possibility. In view of the negative abdominal taps, the high hemoglobin and hematocrit levels, and the lack of response to blood transfusion, I don't think we can seriously consider a ruptured spleen.

My final diagnosis, therefore, is pulmonary embolus. I think it is important to remember that pulmonary embolism does not just occur following surgical operations. This is one of the more common causes of death on medical wards, in nursing homes, or in people who have been immobilized for any reason and who fit the four criteria that I mentioned above. The second diagnosis would probably be dissecting aneurysm; the third, infarction of the bowel; and the fourth, localized perforation of a viscus.

Dr. Ziffren: Are there any questions you wish to direct to Dr. Liechty? Where did you get the idea that the patient was straining at stool? The

protocol states merely that there was weakness after a bowel movement.

Dr. Liechty: I assumed she was constipated.

Dr. George R. Zimmerman, Pathology: The patient died of massive pulmonary embolism, with complete occlusion of the pulmonary aorta.

She had bilateral cardiac dilatation and bilateral myocardial hypertrophy (heart weight, 485 Gm.). The left side was hypertrophied more than the right. The myocardium was chestnut brown; we recognize this coloration as an accompaniment of aging and not necessarily related to hypertrophy. The myocardial hypertrophy, to some extent, was probably due to hypertension, but the degree of hypertrophy in this patient was disproportionate to the mild degree of hypertension. With this in mind, and considering the clinical diagnosis of arteriosclerotic heart disease, we must conclude that the hypertrophy was partly due to so-called arteriosclerotic heart disease.

It is becoming generally recognized that arteriosclerotic heart disease—in the sense that the term is ordinarily used, implying congestive failure in the elderly without demonstrable causative organic lesions—is not due to atherosclerosis. As in many other patients with so-called arteriosclerotic heart disease, this woman's coronary arteries and aorta were remarkably free of atheromata.

The cause of hypertension in this individual is not known. She had mild arteriolar nephrosclerosis histologically, but not in excess of what one commonly sees in normotensive persons of her age. Grossly, the kidneys were normal.

There were multiple fractures of the thorax. The ribs, just lateral to the costochondral junctures, were fractured on both sides; on the left, the second through eighth ribs and on the right the second through seventh ribs. The sternum was fractured transversely at about the fourth and fifth rib level. Fractures of this nature are fairly common in patients who have received closed-chest cardiac massage.

As to the other findings, she had acute splenic and hepatic congestion. I believe this was related to the pulmonary embolism. She had mild fatty metamorphosis of the liver, possibly reflecting low-grade, chronic congestive cardiac failure. Incidental findings included two adenomatous polyps of the colon, chronic cholecystitis with cholecystolithiasis, multinodular goiter (100 Gm.) and a scar in the posterior left ventricular wall of the heart.

The presence of a myocardial scar may seem paradoxical in view of the normal coronary artery system, but not necessarily so, for a number of myocardial lesions can produce scars. Most commonly, scars are healed infarcts due to atherosclerosis, but rarely they may have been produced by abscesses. Furthermore, infarcts can occur without atherosclerosis from uncommon causes—for example coronary artery anomalies, or emboli to coronary arteries. Increases in work such as in hypertension, thyrotoxicosis, or hormonally-active pheochromocytoma may result in infarction, especially if coupled with coronary-artery spasm. Similarly, diminution in effective coronary flow, as in aortic insufficiency, severe myocardial hypertrophy, or anemia, may induce infarction. Often these abnormalities are found in combination.

The source of the pulmonary embolus was not found. The embolus was large and came from a cardiac chamber or large vein—very possibly from the leg, since she had had thrombophlebitis at one time. The embolus straddled the bifurcation of the main pulmonary artery, and there was propagated thrombus beyond it. It seems probable that this patient had pulmonary embolism early on the day of admission to this hospital, and that the pulmonary artery branches thrombosed during the next few hours, causing death. It is also conceivable that shortly before death the embolus shifted from a position producing partial occlusion to one producing more nearly complete or complete occlusion.

Dr. Ziffren: Are there any questions you would like to ask Dr. Zimmerman? Dr. Van Epps would you go over the x-rays again?

Dr. Van Epps: Compare the two radiographs when side by side. Note that there is considerable ischemia of the lungs, with prominence of the pulmonary arteries at each hilum. Just below the calcified node, there is a curvilinear vascular shadow, probably the main right pulmonary artery. In my opinion this is the classical appearance of pulmonary embolism without infarction.

Dr. Fred E. Abbo, Internal Medicine: Dr. Van Epps, would you see something similar to that in shock?

Dr. Van Epps: No.

Dr. Abbo: Why not?

Dr. Van Epps: Because this is a mechanical block. In shock the patient has patent vessels, even though little blood may be flowing. The nearest condition that can give a similar picture is that of pulmonary emphysema with cor pulmonale.

Dr. John McMahon, Internal Medicine: Dr. Van Epps, would you say that in the last chest film the vasculature is more sharply attenuated on the left than on the right?

Dr. Van Epps: The vasculature is cut off, so to speak, and is more prominent in the right base and left upper lobe, although the heart obscures the lower lung field on the left. It, too, participates in the ischemia. There is a fracture of the left fifth rib posteriorly, probably old.

Dr. Montague Lawrence, Surgery: I would not be alarmed over the x-ray findings of fractured ribs following closed cardiac massage, unless the patient had an unstable anterior chest as the result of multiple fractured ribs or displacement of the sternum. Then, I think, the patient should have external stabilization of the anterior chest wall.

If the massage was so forceful that it produced comminution of the ribs and laceration of the lung, with subcutaneous emphysema and pneumothorax, then a chest tube should be placed in the pleural cavity. If someone in this age group is very forcefully embraced, a fractured rib will result, so I am quite sure that you can see how easily the amount of force required to obtain adequate cardiac resuscitation will produce a fracture of the ribs. Most of these people are also emphysematous, and to incarcerate the heart adequately between the posterior portion of the sternum and the vertebra, it has even been suggested that the anterior rib cage or cartilages *should* be fractured so that adequate massage of the heart can be carried out.

Dr. Ziffren: Does anyone want to ask Dr. Lawrence any questions about this cardiac massage?

Dr. Richard Eckhardt, Internal Medicine: I should like to ask one of our enthusiastic surgeons about the feasibility of going in and surgically removing the embolus. Embolectomy has been written about recently, and I wonder how successful this procedure is.

Dr. Lawrence: There are three methods that might be used to extract a clot from the pulmonary artery. The Trendelenburg procedure would require exploration of the patient's thorax, placing a clamp across the pulmonary artery and extracting the clot. Very few patients have survived this operation, but I believe there was a Czechoslovakian patient recently reported in the literature who lived following this procedure. More recently, Dr. Denton Cooley, of Houston, has utilized complete cardiac bypass to remove a clot from the pulmonary artery. A pump oxygenator must be available at all times for immediate use, and the patient must live long enough so that partial or complete bypass can be instituted for this procedure. Dr. Richard Sautter and his group at the Marshfield Clinic recently reported the case of a patient who developed a pulmonary embolus following splenectomy necessitated by severe trauma to the abdomen. The patient developed the pulmonary embolus some five or six days following the initial operation. Total general hypothermia was used, with occlusion of the inferior and superior vena cava, while the pulmonary artery embolus was extracted. The patient lived approximately six or seven days postoperatively. I think the latter method would be very useful if the patient lived long enough and if the necessary facilities were available for immediate use.

Questioner: It would be of interest to know what the electrocardiogram showed.

Dr. George N. Bedell, Internal Medicine: It is described in the protocol as showing a posterior infarct.

Dr. Ziffren: This patient had been on antihypertensive drugs for a long time. During the last few months the anesthetists have been somewhat concerned about the dangers of giving an anesthetic to a patient who has been receiving antihypertensive drugs. Would you care to comment on this, Dr. Hamilton?

Dr. William K. Hamilton, Anesthesiology: I don't want to pose as an expert on the very complex pharmacology of new and not-so-new antihypertensive drugs. I think we can, in a sense, lump them all together and say that either by electrolyte interference or interruption of the autonomic nervous system or actual interference with production, release, or effect of catecholamines, these drugs interfere with the normal sympathoadrenal integrity that maintains circulation. We can further say, as far as I know, that all anesthetic agents are direct depressants of the cardiovascular system, and the fact that patients do as well as they do under anesthesia is a consequence of the fact that there is reflex or compensatory excitation of the sympathoadrenal system.

By various means, one can detect a release of catecholamines or an increase in sympathetic activity during the time of surgery. If a patient has been given drugs which destroy the ability of the sympathetic or autonomic nervous system to adjust to anesthetic agents, these agents or poisons may then give rise to circulatory collapse or hypotension. This may sound like a very good story, but we see a large number of patients who have been on these drugs and who don't seem to have any more trouble than do patients not on these drugs. We have not kept accurate records of this, and the errors of clinical impression have been brought home to all of us. We may be wrong. We are keeping track of the situation now, to see whether or not patients on antihypertensive drugs for a long period of time do give us more trouble with circulatory emergencies or near emergencies in the operating room.

Recently a test was devised to evaluate these patients or this problem. This test is based on the fact that some vasopressors are more incapacitated by certain antihypertensive drugs than are others. There is a class of vasopressors—and in my fear there may be a pharmacologist in the crowd, I shall not go into detail—which depends upon the presence of epinephrine or norepinephrine in the end organ or effector organ. This class of vasopressors would be best exemplified by ephedrine or desoxyephedrine. It can be postulated that if we were to give a patient a reasonable dose of ephedrine and get no response or a minimum response, we could conclude that his catecholamine level was so reduced, or his sympathoadrenal system was so compromised, that surgery or anesthetics should be deferred until the situation had been rectified. It is interesting again to note that the people who postulate this evaluation have provided us with no figures as to the actual results of this test.

There is, to me, a bit more appealing evaluation

which is a modification of this test. Almost all the drugs which rely on the presence of norepinephrine and epinephrine to produce their effect exhibit considerable tachyphylaxis, which is a reduction in response to repeated doses of the drug. It would seem to me that the speed of development of tachyphylaxis might be a more honest answer—a more finite indication than one would get from the evaluation of a single response to a single dose.

Questioner: In all cases of pulmonary embolism is shock the common cause or mechanism of death, and is the shock classified as neurogenic shock?

Dr. Zimmerman: It is neurogenic shock in that many of the patients die almost instantly. They are well and in bed, for example, but then rise, dislodge an embolus and die in a matter of seconds. That is, of course, not always true, as this case exemplifies. I can't be more profound than that.

Questioner: Is this due to brain stem anoxia?

Dr. Zimmerman: It seems too fast for brain stem anoxia. "Cardiac arrest" seems to me a more reasonable explanation.

Questioner: Could death be due to a pulmonary obstruction that raises the resistance and therefore affects cardiac function?

Dr. Zimmerman: Certainly not always, because people die from pulmonary emboli to relatively small branches of the pulmonary artery system. This would not be expected to increase the resistance more than perhaps a few per cent. On the other hand, one can take the lung out and increase the resistance considerably more without producing death.

Dr. Henry E. Hamilton, Internal Medicine: Dr. Zimmerman, we know that some of these individuals who die a short time after a small pulmonary embolus develop right bundle branch block, a very loud pulmonary second sound and a profound drop in peripheral blood pressure. This certainly indicates an increase in pulmonary artery pressure due to general obstruction in blood flow within the pulmonary circuit.

Dr. Ziffren: Are there any other questions? Does anyone here want to postulate how the embolus got there? Dr. Warner, would you?

Dr. E. O. Warner, Pathology: I don't really have anything to add to what has already been said. The embolus formed, obviously, in one of the large veins, and occluded the pulmonary artery. Being in the pulmonary aorta, it obviously was not where it formed. Since no other thrombi were found, I should say it came from a large vein.

Dr. Abbo: Is it possible that it came from a small vein and then grew?

Dr. Warner: The saddle embolus described was too large to have formed in a small vein. Additional clot could have added to it after it lodged, of course.

Dr. Liechty: In reference to what was said before, I might add that the surgeon can remove a lung and tie off the pulmonary artery within the space of a few minutes without, ordinarily, causing cardiac arrest. When I was a third-year medical student, I was working up a 28-year-old man who had been sent to our hospital with thrombophlebitis. He had undergone a vein-stripping elsewhere. As I was taking his history, he suddenly turned ashen white and fell over on me. He was a well-built, muscular fellow, and I ran to get help. By the time I returned with a nurse, he had recovered completely. The next day, he coughed up red sputum, and the roentgenogram showed the wedge-shaped lesion in the chest that Dr. Van Epps mentioned. One minute he was in perfect health, and the next minute he was in complete collapse. From vivid personal experience, I postulate this was a neurogenic reflex. I think most of our textbooks relate death from pulmonary embolus to neurogenic reflex. A clot suddenly hits the lungs, and a neurogenic reflex results in cardiac arrest.

Dr. Henry E. Hamilton: Dr. Liechty's observations on this patient support the concept of a general reflex causing sudden interference with pulmonary blood flow. This would effectively cut blood flow as a secondary consequence from the left ventricle, and obviously result in cerebral anoxia and sudden faint or unconsciousness. Over the years there have been a number of excellent review articles pertaining to this subject. One of the more recent ones is to be found in the March, 1958, issue of THE AMERICAN JOURNAL OF MEDICINE.

ANATOMICAL DIAGNOSES

Pulmonary embolism, massive, with propagated thrombosis
- a. fatty metamorphosis of liver
- b. visceral congestion, mild

Hypertensive cardiovascular disease with myocardial hypertrophy
- a. arteriolar nephrosclerosis, mild
- b. atherosclerosis, mild
- c. healed posterior septal myocardial infarct

Fractures of second through eighth ribs, left, second through seventh ribs, right, and sternum, due to the closed-chest cardiac massage

Obesity

Adenomatous polyps of ascending colon

Multinodular goiter

Chronic cholecystitis with cholecystolithiasis

Melanosis coli

CLINICAL DIAGNOSIS

Ruptured spleen

DR. LIECHTY'S DIAGNOSES

Pulmonary embolus

Other possible diagnoses:
- Dissecting aortic aneurysm
- Intestinal infarction
- Localized perforation of a viscus

Coming Meetings

IOWA

Dec. 4-5 — **Pediatric Surgical Problems (S.U.I. Department of Surgery).** University Hospitals, Iowa City

Jan. 8-9 — **Obstetrics & Gynecology (S.U.I. Dept. of Obstetrics & Gynecology, Maternal & Child Health Div. of State Dept. of Health, and Iowa Obstetrical & Gynecologyical Soc.).** University Hospitals, Iowa City.

Jan. 10-11 — **Medical Postgraduate Conference—Obstetrics and Gynecology.** S.U.I. College of Medicine, Iowa City

CONTINENTAL U. S.

Dec. 1 — **Pediatrics.** Presbyterian Medical Center, San Francisco

Dec. 1 — **Annual Meeting of the West Coast Allergy Society.** Portland, Oregon

Dec. 1-2 — **Psychiatric Perspectives in Medicine (University of California).** Stockton State Hospital, Stockton

Dec. 3-5 — **Association for Research in Ophthalmology.** University of Michigan Auditorium, Ann Arbor

Dec. 3-7 — **Board of Internal Medicine Review, Part II.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 — **Breast and Thyroid Surgery.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 — **Psychiatry for the Internist (American College of Physicians).** Los Angeles County Hospital, Los Angeles

Dec. 3-7 — **Management of Common Fractures and Dislocations.** Cook County Graduate School of Medicine, Chicago

Dec. 3-7 — **Cardiopulmonary Diseases and Occupation (American College of Chest Physicians and the Industrial Medical Association).** Statler Hotel, Detroit

Dec. 4-6 — **Orthopedics in General Practice.** Medical College of Georgia, Augusta

Dec. 4-7 — **Scripps Clinic and Research Foundation, Institute for Cardiopulmonary Diseases.** Sherwood Hall, La Jolla

Dec. 5-7 — **Medical Society of the United States and Mexico.** Tideland's Hotel, Tucson

Dec. 6 — **Electrolytes and Fluid Balance.** University of Nebraska College of Medicine, Omaha

Dec. 6 — **Postgraduate Course in Electrolytes and Fluid Balance.** University of Nebraska College of Medicine, Omaha

Dec. 6-8 — **Electrocardiographic Interpretation (University of Southern California).** Statler-Hilton Hotel, Los Angeles

Dec. 6-8 — **Ocular Pharmacology and Therapeutics.** University of California, San Francisco

Dec. 7-8 — **Association for Research in Nervous and Mental Diseases.** Hotel Roosevelt, New York City

Dec. 7-8 — **Puberty and the Climacteric.** University of California, San Francisco

Dec. 7-9 — **American Psychoanalytic Association.** Commodore Hotel, New York City

Dec. 8 — **International College of Surgeons, International Executive Council.** Secretariat, Chicago

Dec. 10-14 — **Advances in Surgery.** Cook County Graduate School of Medicine, Chicago

Dec. 12-14 — **Medical Considerations in the Surgical Patient (Hahnemann Medical College and Hospital).** Sheraton Hotel, Philadelphia

Dec. 13-14 — **The Eye in Physical Diagnosis (Kansas Medical Society, The Kansas Academy of General Practice and The Kansas State Board of Health).** University of Kansas Medical Center, Kansas City, Kansas

Dec. 13-15 — **The Physician and the Emotionally Disturbed Patient.** University of California, San Francisco

Dec. 17-21 — **Varicose Veins.** Cook County Graduate School of Medicine, Chicago

Dec. 17-21 — **Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

Dec. 17-21 — **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Dec. 18 — **Judicious Use of Cardiac Glycosides (Neosho County Medical Society and the University of Kansas School of Medicine).** The Southeast Kansas Tuberculosis Hospital, Chanute, Kansas

Jan. 9 — **Los Angeles Pediatric Society.** Ambassador Hotel, Los Angeles

Jan. 12 — **Postgraduate Course on Pediatric Surgery.** Children's Hospital, San Francisco

Jan. 12 — **Diabetes and Thyroid.** Presbyterian Medical Center, San Francisco

Jan. 12-13 — **Psychiatry in Medical Practice (University of Southern California).** San Bernardino County General Hospital, San Bernardino

Jan. 13-19 — **Ninth Annual General Practice Review.** University of Colorado School of Medicine, Denver

Jan. 15 — **Radiation Therapy of Brain Tumors Supplementing Surgery (Neosho County Medical Society and The University of Kansas School of Medicine).** The Southeast Kansas Tuberculosis Hospital, Chanute, Kansas

Jan. 16-18 — **Eleventh Postgraduate Course—Diabetes in Review: 1963 Clinical Conference (American Diabetes Association and The New England Diabetes Association).** Statler Hilton Hotel, Boston

Jan. 17-18 — **Obstetrics and Gynecology.** University of Nebraska College of Medicine, Omaha

Jan. 17-19 — **Postgraduate Course on Clinics in Medical and Surgical Specialities.** University of California, San Francisco

Jan. 18 — **American Society of Facial Plastic Surgery.** Hotel Elyseé, New York City

Jan. 18-19 — **American Society for Surgery of the Hand.** Americana Hotel, Miami Beach

Jan. 19 — **Arteriosclerosis.** Presbyterian Medical Center, San Francisco

Jan. 20-25 — **American Academy of Orthopaedic Surgeons.** Americana Hotel, Miami Beach

Jan. 21-23 — **American College of Surgeons.** Sectional Meeting, Phoenix

Jan. 21-25 — **Diseases of the Blood Vessels and Problems of Thromboembolism—Diagnosis and Treatment (American College of Physicians).** Cornell University Medical College and The New York Hospital, New York City

Jan. 25-27 — **Postgraduate Course on the Potential of Women.** University of California, San Francisco

Jan. 26-27 — **First Conference on Pediatric Anesthesia.** Children's Hospital, Los Angeles

Jan. 27 — **Homicide and Suicide, and the Medico-Legal Aspects of Psychiatry.** Neurological Hospital, Kansas City, Missouri

Jan. 28-Feb. 1 — **Vaginal Approach to Pelvic Surgery.** Cook County Graduate School of Medicine, Chicago

Jan. 28-Feb. 1 — **Varicose Veins.** Cook County Graduate School of Medicine, Chicago

Jan. 28-Feb. 1 — **Proctoscopy and Sigmoidoscopy.** Cook County Graduate School of Medicine, Chicago

ABROAD

Jan. 25-Feb. 6 — **Operation: Surgical Specialties (West Indies Congress of the International College of Surgeons).** Cruising aboard the S.S. Santa Rosa; clinical meetings in Puerto Rico, Jamaica, Haiti, Venezuela, Netherland West Indies. For arrangements contact International Travel Service, Inc., 116 South Wabash Avenue, Chicago 3

Feb. 20-24 — **International Congress on Diseases of the Chest (Council on International Affairs, American College of Chest Physicians).** New Delhi, India. Write: Mr. Murray Kornfeld, Executive Director, 112 E. Chestnut Street, Chicago 11

Feb. 20-24 — **Seventh International Congress on Diseases of the Chest (American College of Chest Physicians).** New Delhi, India

Feb. 23-27 — **Pan American Doctors' Club.** Hacienda San Miguel Regla, Huasca, Hidalgo, Mexico. Write: Dr. Robert E. Reagen, Secretary, 232 Windsor Rd., Benton Harbor, Michigan

May 2-5 — **Hawaii Medical Association.** Princess Kaiulani Hotel, Honolulu

(Continued on page xxxviii)

Christmas Wishes

To you and to yours we wish a Blessed Christmas. The gift of peace is mankind's deepest wish and one great hope. At this Christmas time and throughout the coming year, may you be blessed as the Lord instructed Moses to bless the children of Israel:

The Lord bless thee, and keep thee;

The Lord make his face to shine upon thee, and be gracious unto thee;

The Lord lift up his countenance upon thee, and give thee peace.

Routine Coagulation and Bleeding Times—Yes or No?

For many years it has been customary to do preoperative coagulation and bleeding times on each surgical patient, and especially on each one who is to undergo tonsillectomy. These procedures have been done to screen out those patients with a blood-clotting defect—ones who would be "bleeders" during and following surgery. The tests were effective to a certain extent, for gross coagulation defects were identified in some of the patients.

In the last few years, however, our understanding of blood coagulation has improved tremendously. We have a standard classification for the factors necessary to blood clotting, and we have a better understanding of how they work. We also know much more than we did about the genetics of blood clotting, and realize that hemophilia is not the only hemorrhagic disease that is inherited.

Improved methods of identifying defects in the clotting mechanism have also been developed. There are now several procedures available which appear to be more effective than the bleeding and coagulation times, in identifying these defects.

Without belaboring the point, it can be said that we now know how inaccurate the bleeding and coagulation times really are. Yet many of us recall a tonsillectomy that was cancelled because the coagulation time was a minute above the "normal" range.

The time has come for us to abandon our devotion to bleeding and coagulation times, and to eliminate them as a routine preoperative procedure. This should apply to candidates for tonsillectomies and circumcisions, just as to other surgical patients.

In place of finding the bleeding and coagulation times, we should take a searching individual and family history, and do a careful physical examination. Rare is the bleeder who has no relative with a bleeding tendency, and even rarer is the patient with a clotting defect who hasn't had a previous bleeding episode. Prolonged bleeding after a cut lip or a tooth extraction, a story of easy bruising, unexplained nosebleeds, bleeding into the urinary tract—all these are danger signals that should not be overlooked.

If, because of legal considerations, sentiment among the physicians in a community favors a screening procedure for hemolytic disease, then one of the more effective methods for picking up bleeders should be instituted.

Patients who are suspected of having a hemorrhagic disease on the basis of the history and physical examination, and possibly of the screening procedure, should be given a thorough study of clotting mechanisms. A "coagulation profile" can be carried out in most of the larger clinical pathology laboratories.

Once the coagulation defect has been identified (and it can be identified in most cases), appropriate treatment can be given to prepare the patient for the surgical procedure at hand. *More importantly, the patient, his family and his doctor will then know what his problem is, and will be prepared to deal with it effectively the next time.*

So the answer to our question is, "No, routine bleeding and coagulation times are not necessary, nor are they indicated." But an effective program for "bleeders," using our new knowledge about blood coagulation, is indicated.

For those who are interested in pursuing the subject, attention is called to the following articles:

1. Diamond, L. K., and Porter, F. S.: Inadequacies of routine bleeding and clotting times. NEW ENGLAND J. MED., **259**:1025-1027, (Nov. 20) 1958.

2. Diggs, L. W.: Diagnosis of hemorrhagic diseases; evaluation of procedures. CALIFORNIA MED., Part I. History, physical examination, **87**:361-364, (Dec.) 1957; Part II. Preoperative tests, **88**:16-19, (Jan.) 1958.

3. Fletcher, R.: Routine bleeding and clotting time tests: their medicolegal status. LARYNGOSCOPE, **68**:1087-1094, (June) 1958.

4. Myers, R. S.: Routine bleeding, clotting times are unnecessary and outdated. MOD. HOSPITAL, **95**:-115, (Oct.) 1960.

5. Currens, J. H., and Grant, M.: Blood thrombotest versus prothrombin test; comparison in patients maintained on bishydroxycoumarin and related drugs, J.A.M.A., **178**:760-762, (Nov. 18) 1961.

—F. C. Coleman, M.D.

What Hospitals Desire of Doctors

The modern voluntary hospital is a unique institution in our society. It stands with the church as an institution dedicated not to its own aggrandizement, but solely to the welfare of the people. We measure its excellence, not by the fine buildings or large endowments it may possess, but by the quality of care it renders to sick people.

The hospital is also unique in the nature of its internal structure. Although its board of trustees or directors has ultimate legal and fiscal responsibility for the institution, the people who compose the board are incapable of evaluating or judging the quality of medical care rendered within its walls. Thus to the doctors who comprise the medical staff of the hospital, the board delegates the duties of evaluating, preserving and improving the quality of medical care rendered there. In the exercise of that responsibility, doctors are ultimately responsible for their organizational functions to the board of trustees. But of a higher order of responsibility is the doctor's obligation to the patient. In the conduct of the medical affairs of the hospital, the doctor must be certain that all of the standards established, rules promulgated and procedures developed will result in better care for the patient.

So it is that hospitals fervently desire that doctors recognize the mutuality of purpose of the individual physician, the organized medical staff and the other elements that comprise the modern hospital. Recognizing that common goal, hospitals are eager to have doctors conduct the medical affairs of the institution so that the standards of patient service are constantly upheld and improved. To do this, doctors and hospitals must recognize that neither can achieve their common goal alone. With the increasing complexity of medical science, doctors alone cannot take care of complicated illnesses. In addition to the services of the patient's chosen physician, most illnesses require consultant physicians; the pathologist and other laboratory personnel, equipment and know-how; the radiologist with his x-ray equipment and ancillary personnel; electroencephalograms, electrocardiograms, oxygen and endoscopy, together with technicians to help administer them; nurses; dietitians; social workers; chaplains; internes; residents; and many other people and things. In short, the doctor is the captain of a team, all the members of which are working for the patient's welfare.

But the doctor frequently feels that though he is captain of the team, he has little control over his teammates, and much of occasional dissatisfaction may be traced to that phenomenon. He sometimes views the vast organization of the hospital, with its potentiality for help or hindrance to his fundamental purpose, as threatening or at least frustrating. The possibility, however remote, of his losing the use of the hospital's resources through the termination of his staff membership creates in him an antagonism toward those in whom ultimate control is vested, or even a fear of them.

Hospitals are anxious to have doctors view themselves, not as a group apart from the hospital and its hierarchical authority, but as the very center and most important members of the team of specialists, all of whom serve the patient. With a full understanding of the team nature of modern medical care, doctors will recognize their responsibilities for self-government and for the development of procedures that the team members will follow. Having set the standards and the rules themselves, doctors should wholeheartedly support them—voluntarily, recognizing that the rules are their own, rather than grudgingly, thinking of them as "rules that must be observed to help our accreditation."

Hospitals without doctors are a figment; doctors without the resources of a hospital are ill-prepared to care for the sick and injured. Recognizing these facts, hospitals and doctors should view themselves as one, working in concert for the welfare of the sick. Denial of the common interest will lead to controls external both to the medical profession and the hospitals.

Abe and Ike were together in a small ship. Abe exclaimed, "Look, Ike, we're sinking!"

"So vat," said Ike. "It's not our ship."

It *is* our ship, and it *can sink!* Let's work together to make it seaworthy!

—DONALD W. CORDES, *Administrator*
Iowa Methodist Hospital
Des Moines

Fractures of the Femoral Neck

Despite improved methods of treatment, fractures of the femoral neck continue to pose a difficult problem. Two recent studies emphasize the difficulties encountered in the treatment of a large series of patients.

Banks* reported on the treatment of fractures of the femoral neck at the Peter Bent Brigham Hospital during the 20-year period 1939-1959. During that period, 301 fresh intracapsular fractures of the femoral neck were treated in 296 patients—234 females and 62 males. Though their average age was 70 years, 187 were over 70 years of age and 81 of them were 80 years of age or older. In the vast majority of cases, the accident responsible for the injury had been trivial and had occurred within the home. Only 97 of the patients had no medical problem and were regarded as healthy.

Patients with displaced fractures of the femoral neck were treated by reduction and internal fixation as soon as an operation was considered safe and practical, usually within 24 hours. Many different types of anesthesia were administered. In 182 hips, closed reduction was considered satisfactory, and in 31, open reduction was necessary. A cannulated Smith-Petersen nail was the most commonly used method of fixation. Since 1950,

* Banks, H. H.: Factors influencing result in fractures of femoral neck. J. BONE & JOINT SURG., 44A:931-964, (July) 1962.

vitallium screws have been used routinely in impacted fractures to prevent disimpaction.

Postoperative complications occurred in 84 of the 296 patients. Phlebitis, pulmonary embolism, myocardial infarction, bronchopneumonia, urinary tract infections, and sepsis were the most common postoperative complications. Forty-five patients died within one year from the date of injury. Six patients were too ill for any operative procedure on admission, and died before their fractures could be cared for. Twenty patients died within eight weeks after injury. Thirty-one died too early for the results of their operations to be assessed.

Follow-up studies at one year after operation revealed that of 123 patients with displaced fractures, 89 (72.4 per cent) were healed, and nonunion was present in 34 (27.6 per cent). Of 59 impacted fractures, 57 (96.6 per cent) were healed at the end of one year. At the end of two years, follow-up study determined that aseptic necrosis was present in 25 of 75 patients who had had displaced fractures, and in four of 43 patients who had had impacted fractures.

As a result of this experience, Banks concluded that inadequate reduction, technical errors in fixation, and premature weight-bearing are the main factors which lead to nonunion. The development of aseptic necrosis appeared to be defined at the time of injury. Delayed reduction and fixation, multiple manipulations, open reduction, and overcorrection in the valgus position, had had no influence on the incidence of aseptic necrosis.

In a similar study at St. Luke's Hospital, New York City, Fielding and associates* reported their follow-up experience with 179 consecutive intracapsular fractures of the femoral neck treated between 1952 and 1959. Theirs is a continuation of the study of this problem at St. Luke's Hospital which now covers 30 years and totals 514 cases. The group of 179 patients were very similar to the Boston group in that 89 per cent were women and the average age was 72 years. Associated illnesses were present in the majority of patients, but they nevertheless withstood operation very well.

Twenty-six of the 179 patients died before union could have occurred, and 17 patients were lost to follow-up. The remaining 136 fractures were available for evaluation of end-results, and were observed for an average of 44 months after the operation.

Thirty-three of the 136 fractures were undisplaced; 32 had been fixed by a Smith-Petersen nail; and one had not been operated upon. All of the undisplaced fractures had united solidly in an average time of 4.3 months. Aseptic necrosis had developed in four cases (12.1 per cent).

There were 103 displaced fractures. The Leadbetter maneuver had been used to reduce the fractures, and open reduction had not been considered necessary in any instance. Good reduction was considered essential, and the reduction was verified by anteroposterior and lateral roentgenograms. Sixty-six of the 103 had been fixed with the Smith-Petersen nail, and 37 (56 per cent) had united. Aseptic necrosis had developed in nine of the united fractures. During the 1941 to 1952 period, closed reduction and internal fixation had been used, and the incidence of non-union had been approximately 22 per cent. The authors have no explanation for non-union in 44 per cent of the present series.

Thirty-five fractures had been fixed by telescoping Pugh nails, and 30 were available for study. Of these, 27 had united (90 per cent) and aseptic necrosis had developed in six cases. Two fractures had been fixed by the Jewett nail. Both of these had united, and aseptic necrosis had not occurred.

In the New York experience, displaced fractures have continued to be a difficult problem. In 13 patients in whom the Smith-Petersen nail was used, the nails backed out of the head fragment, with resultant non-union. In displaced fractures in which the Smith-Petersen nail was used, non-union resulted in 44 per cent. A much better result was experienced when the telescoping Pugh nail was used. In 30 fractures fixed by the latter method, the incidence of non-union was only 10 per cent. Though acknowledging that their series of 30 cases in which the Pugh nail was used is too small to be statistically significant, the authors contend that the telescoping appliance offers the greatest advance in the fixation of displaced intracapsular fractures since the introduction of the Smith-Petersen nail.

* Fielding, W. J., Wilson, H. J., and Zickel, R. E.: Continuing end-result study of intracapsular fracture of neck of femur. J. BONE & JOINT SURG., 44A:965-972, (July) 1962.

Gamma Globulin May Only Disguise Hepatitis

Krugman and Ward* have added materially to the clarification of the natural history of infectious hepatitis by their carefully controlled studies at the Willowbrook State School, Staten Island, New York, where an endemic situation offered an unusual opportunity for the study of the disease. In that institution for mentally defective children, the disease has been endemic since 1953, and approximately 700 cases of infectious hepatitis with jaundice have been observed since 1956.

Three particularly significant facts about the disease were shown in the work at Willowbrook. The first was that the virus is present in the serum and in the stool on the twenty-fifth day of the incubation period, two to three weeks before the onset of clinical jaundice. The second finding of great importance was that subclinical hepatitis does occur unaccompanied by any overt evidence of disease. The third significant finding from this study was that administration of gamma globulin to the exposed individual does not prevent the dis-

* Krugman, S., Ward, R., and Giles, J. P.: Natural history of infectious hepatitis. AM. J. MED., 32:717-728, (May) 1962.

ease, but does suppress the jaundice and thus modifies the disease so that it becomes difficult to recognize clinically.

Initially, the authors obtained feces from six patients with infectious hepatitis during the first eight days of recognized jaundice. The feces were pooled, and a 20 per cent suspension was prepared. After centrifugation, the supernatant was heated to 56° C. for 30 minutes, and rendered bacteria-free through the addition of antimicrobial agents. The suspension was inoculated intracerebrally into monkeys and newborn mice, and into tissue culture, and was observed for six weeks. Since the tissue culture showed no cytopathic change and the animals remained well, the suspension was considered safe for experimental feedings.

Sixteen newly admitted and presumably susceptible children were placed in isolation, where they had no contact with other children, but were intimately exposed to one another. Ten children were fed the pooled suspension, and six children served as controls. Careful clinical observations were made daily, and liver function studies were done weekly. Hepatitis with jaundice developed in three children 41, 44, and 49 days after ingestion of the virus. The first case of hepatitis in the control group occurred on the sixty-sixth day. It was postulated that the patients who acquired the disease on the sixty-sixth day acquired the infection as a result of contact with children who had developed the disease 41 to 49 days after ingestion of the virus. Inasmuch as the incubation period of early cases in the institution was approximately 40 days, it was thought that the virus must be present in the stool during the incubation period.

To determine whether virus was present in the stool during the incubation period, stools obtained from three patients on the twenty-fifth day of the incubation period were pooled, treated and tested for safety. Thirteen children were admitted to the isolation unit and fed the suspension. Hepatitis developed in five subjects 35 to 63 days later. The children from whom the stool pool was made were asymptomatic, and their liver function tests were within normal limits. This trial established that the virus is excreted in the feces during the incubation period.

Virus was consistently found in the feces during the acute stage of the disease in a pool obtained from the first to the eighth day after the onset of jaundice. Two stool pools collected from patients during convalescence were negative. The first, obtained on the nineteenth to thirty-third day after the onset of jaundice was tested on 10 children, and none of them developed hepatitis. Stools from one patient on the thirty-second day after the onset of jaundice, and in whom the serum glutamic oxaloacetic transaminase was 750 units, were also negative for virus.

Other studies were made to determine whether the virus of infectious hepatitis was present in the blood during the incubation period. Virus was not found in the blood on the eighteenth day of incubation. Viremia was detected in six of 12 children on the twenty-fifth day of the incubation period (two to three weeks before the onset of jaundice), and in seven of nine patients three to seven days before the onset of jaundice.

The infective serum obtained on the twenty-fifth day of incubation was tested for bilirubin concentration, thymol turbidity, cephalin flocculation, and serum transaminase. All determinations were normal, indicating that viremia was present with no evidence of liver disturbance. Repeated studies demonstrated that the incubation period was essentially the same after oral administration and after infected serum was given parenterally, and that patients with parenterally-induced infections were as capable of transmitting the disease as were patients with hepatitis induced by oral feedings of the virus.

A case of unusual significance was that of a six-year-old boy who was given the Willowbrook infectious hepatitis virus orally. He was carefully observed daily for 66 days, and at no time did he show any evidence of disease. Serial tests of serum bilirubin, thymol turbidity and cephalin flocculation remained normal. His one demonstrable abnormality was a rise in serum transaminase to 250 units on the thirty-seventh day. The serum obtained on the thirty-seventh day produced hepatitis in six of eight persons 33 to 47 days following intramuscular injection. This patient clearly demonstrated that infectious hepatitis can occur without overt signs or symptoms of the disease—the so-called anicteric hepatitis.

The clinical course of the disease following ingestion of virus followed a consistent pattern. Fever, if present, was usually the first sign of infection. An elevation of the SGOT was the first indication of abnormality of liver function. It usually preceded the onset of jaundice by five days, and on occasion by 10 days. The SGOT reached its highest level when jaundice was first detected. Jaundice usually lasted eight days, hepatomegaly about two weeks, elevated serum bilirubin approximately one week, abnormal thymol turbidity three weeks, and elevated SGOT two weeks.

Surprisingly, second attacks of infectious hepatitis occurred in 32 patients (4.6 per cent). The interval between the first and the second attacks varied between two and 16 months. The authors postulated that the second attack might be explained by the following facts: (1) there are multiple immunologically distinct types of infectious hepatitis viruses; (2) the virus may become latent following the first infection and for some unknown reason recur; (3) the second attack may be induced by a dose of virus so large that it overwhelms the host's resistance; and (4) the second attack may occur in individuals with deficient immune mechanisms.

The effect of gamma globulin on the attack rate of hepatitis with jaundice was the subject of a special study. Over a two-year period, alternate patients were given 0.06 ml. per pound of body weight on admission to the institution. During the first five months, only one case of hepatitis oc-

curred in the inoculated group, in contrast to 31 cases in the uninoculated group. However, in the period in between the sixth and the twenty-fourth month following admission, hepatitis occurred with equal frequency in the two groups. From this experience it was postulated that during the first five months the gamma globulin suppressed the jaundice, but did not prevent the infection.

To test the validity of the hypothesis that gamma globulin does not prevent infection but does suppress jaundice, another study was undertaken. A group of 40 newly admitted patients were given 0.06 ml. of gamma globulin per pound of body weight, and 45 patients were chosen to serve as controls. During the six months following admission, each patient was examined and blood was drawn for laboratory study at least weekly. In the inoculated group, three cases of hepatitis with jaundice and 12 cases of anicteric hepatitis occurred in the first six months. In the uninoculated group, six cases of hepatitis with jaundice and 11 cases of anicteric hepatitis occurred during the period. From the study, it was concluded that gamma globulin does not prevent hepatitis infection, for the attack rate was the same in the two groups. Gamma globulin appeared to suppress jaundice and so to modify the disease that it could not be recognized clinically.

The suppression of jaundice is beneficial to the patient, but it poses a public health problem in that the anicteric patient has a greater opportunity to spread the disease.

Gamma Globulin and Chickenpox

A well planned, well controlled, and carefully executed study of the value of gamma globulin in the modification of chickenpox has provided the answer to a controversial question. This splendid contribution by Ross* shows what the individual practicing physician can accomplish in clinical research. The importance of this study lies in the fact that a need for the modification of chickenpox has become apparent because an increasing number of serious sequelae have occurred under circumstances of special risk.

During a four-year period and in a study of 773 private pediatric patients, Ross evaluated the effects of varying amounts of gamma globulin administered to children exposed to chickenpox. There were 322 primary cases of the disease. Of the secondary contacts in the home, 242 were inoculated with gamma globulin, and 209 served as uninoculated controls. The primary cases occurred chiefly in children between five and eight years of age, and the secondary cases were mainly in the preschool siblings. Gamma globulin was administered intramuscularly within three days of exposure in amounts of 0.1, 0.2, 0.3, 0.4, or 0.6 ml. per pound of body weight.

The results of the study indicated that increasing dosages of intramuscular gamma globulin, given on the basis of body weight and within three days of exposure, produced increasing modifications of the clinical course of chickenpox. There was no evidence of a preventive effect of gamma globulin, however, and the incubation period of the disease was not altered. Children who had modified chickenpox did not develop second attacks, despite repeated exposure. It was clearly demonstrated that there was a steady and consistent decrease in average temperatures with increasing amounts of gamma globulin. The average number of poxes was decreased in the groups receiving 0.1 and 0.2 ml. to about one-third of the average number in the secondary controls; in the groups given 0.3 and 0.4 ml., to about one-fifth; and in the group receiving 0.6 ml., to about one-eighth. The incidences of symptoms—pruritis, sore throat, sleeplessness, irritability, etc.—decreased as the dosage of gamma globulin was increased.

Ross emphasizes that gamma globulin should not be used for normal household contacts, but should be restricted to patients for whom chickenpox would constitute a special risk. He suggests that patients of moderate risk—children in poor health, patients with eczema, and adults with a negative history of the disease—be given 0.1 to 0.2 ml. per pound of body weight. Patients of high risk—newborn infants, babies under six months of age, patients on low steroid dosage, and pregnant women with negative histories—be given 0.3 ml. per pound. In patients of serious risk, with blood dyscrasia or high steroid dosages, and in patients who are receiving antimetabolites, alkylating agents and ionizing radiation, 0.6 ml. per pound should be given.

It is hard to say whether gamma globulin should be given to adults who definitely haven't had chickenpox or who may possibly have escaped it as children. Among 157 adults in the group observed by Ross, only eight contracted the disease. In adults, the histories of a childhood infection are so unreliable that large amounts of gamma globulin could be wasted if used too freely.

* Ross, A. H.: Modification of chicken pox in family contacts by administration of gamma globulin. NEW ENGLAND J. MED., **267**:369-376, (Aug. 23) 1962.

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Postal regulations on second class mail have become more stringent. Under a new ruling, we must pay ten cents per piece for undeliverable second class mail, but worst of all, if you don't happen to reside or practice at the *precise* mailing address which we have for you, your JOURNAL will not be delivered. We urge promptness on the part of all JOURNAL readers in notifying us of address changes!

President's Page

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An educational loan fund of thousands of dollars;
Student borrowers who are tops among scholars.

Simpler claim forms to unfurrow your brow;
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An ample portion of perseverance;
To maintain your skill, sans interference.

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With dignity and respect that will always last.

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Peace, love and stability.

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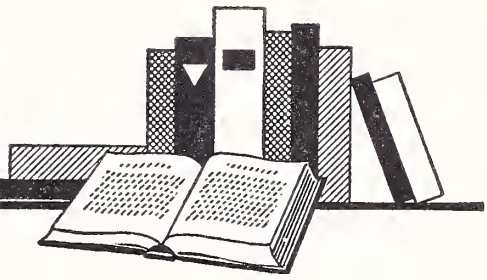


BOOK REVIEWS

SURGERY IN WORLD WAR II: ACTIVITIES OF SURGICAL CONSULTANTS, VOL. I, ed. by *Col. John Boyd Coates, Jr.*, M.C. (Washington, Office of the Surgeon General, Department of the Army, 1962. $6.50).

With the vast amount of surgical work done by the Army Medical Corps during World War II, it is only natural that a history of it should be written. The work was doubly justified, since during that period a great deal of medical progress occurred, and medical and surgical methods changed radically. Col. Coates has done an excellent job.

This particular volume deals with the activities of the surgical consultants, a special liaison appointed to study the over-all organization and continuity of medical care of the wounded, and to coordinate all of those activities. It was also their responsibility to detect problems and errors, and to suggest appropriate changes.

As one might expect, the personalities and the special abilities of certain members of the medical staff of the Armed Forces were important in the solution of special problems and in the accomplishment of a great amount of work. Many of those doctors and their work are described in the book.

It seems to be an interesting and worthwhile volume, and it would be valuable reading for any young surgeon who is likely to face similar problems in the future.—*Carroll O. Adams, M.D.*

WOUND BALLISTICS, ed. by *Col. John Boyd Coates, Jr.*, M.C., and *Major James C. Beyer*, M.C. (Washington, Office of the Surgeon General, Department of the Army, 1962. $7.50).

This unique compilation of war statistics is the nineteenth volume to be published in a series dealing with the history of the U. S. Army Medical Department in World War II. The book is profusely illustrated with actual photographs, and there are many tables.

There are many evaluations of wounding agents and their ballistics, in relation to tissue damage, casualties, morbidity, mortality, protective armor, site of injury, etc., but no attempt has been made to carry out an extensive clinical evaluation of casualties.

Much of the material on ordnance is highly technical, but other parts of it may contribute considerably to the military surgeon's understanding of the tissue pathologies produced by various wounding agents.

No other available text contains such a complete and detailed evaluation of the many meticulous observations of the Army Medical Department, and of the medical implications of U. S. and foreign ordnance. The book should be made readily available to all regular army and reservist military surgeons.—*Richard E. Paul*, M.D.

TEXTBOOK OF OPHTHALMOLOGY, SEVENTH EDITION, by *Francis Heed Adler*, M.D. (Philadelphia, W. B. Saunders Company, 1962. $9.00).

This edition continues the main purpose of the previous editions, that of providing a textbook on ophthalmology for the medical student and the general practitioner. Dr. Adler presents a sensible approach to the handling of common eye difficulties in general practice. What the family physician needs to know about frequently encountered ocular disorders has been carefully set forth.

A new opening chapter on symptomatology links each visual and nonvisual symptom to the disorders with which it may be associated. Four helpful chapters delineate useful and modern methods of examination for both the normal and the diseased eye.

Optical defects, disturbances of motility, glaucoma, injuries, disorders due to disease of the central nervous system, and ocular signs of systemic disease are all thoroughly covered. The latest therapeutic agents are evaluated and discussed, as well as indications for surgery and other indications that call for referral to the specialist.

New sections have been written on inborn errors of metabolism affecting the visual apparatus; on involvement of the eye in cerebral hemorrhage; on birth injuries; on radiation burns of the retina and choroid; and on blast injuries.

Nearly 300 illustrations help the reader to recognize the most common eye disturbances. A selection of recent references brings the bibliographic material up to date.—*Robert H. Foss*, M.D.

PULMONARY STRUCTURE AND FUNCTION, ed. by *A. V. S. DeReuck*, M.Sc., and *Maeve O'Connor*, B.A., for the Ciba Foundation. (Boston, Little, Brown and Company, 1962. $11.50).

This collection of papers by a group of outstanding investigators in their respective fields brings current knowledge of pulmonary structure and function into a single volume. Each report contains a summary and an account of the discussion that followed its presentation.

Many of the papers are detailed and abstruse; others have present applications. Of particular interest to me were a discussion of the "glomus pulmonale," homologue of carotid, jugular and aortic

bodies, and its possible role as chemoreceptor for reflex regulation of respiration; two studies on substances reducing surface tension, elaborated by the cells of alveolar walls; electron microscopic demonstrations of the histologic structure of the lung; and several papers on circulation-perfusion relationships; and ventilation studies making use of radioactive gases.

The volume concludes with a free-wheeling discussion of the symposium by the participants. Although Comroe suggests "We will make more progress in the future by studying the factors which influence the growth, repair and death of the various tissues in the lung than by concentrating further on diagnostic tests so that they might be 99.9 per cent perfect instead of 99 per cent." Hugh-Jones remarks, "A great deal of the physiology of the normal lung has yet to be explored with these very exciting new methods" of fast analysis, radioactive gases, etc.

The present symposium has much fruitful material, good lists of selected references to pertinent studies, and critical comment that should be useful to those with a special interest in pulmonary function as it relates to disease.—*Leon J. Galinsky,* M.D.

LIFE ON THE WARD, by *Rose Laub Coser,* M.D. (East Lansing, Michigan, The Michigan State University Press, 1962. $7.50.)

Mainly, this book concerns the changes in the social roles and social relationships of the hospitalized individual. It describes the situations that assist or deter the sick person in either dying or returning to the community of the healthy.

The author attempts to describe the "good" and the "bad" patient, the "good" and the "bad" nurse, and the "good" and the "bad" doctor, as each of these groups in a teaching hospital see them. She points out the differences in attitudes of staff members between a teaching hospital and a non-teaching one, and shows how the confusion regarding the roles of staff members is bothersome to the patients until they have become oriented to the hospital society. As a result, the patient is frustrated by his inability to get an authoritative answer to a direct question. The author shows that the welfare and individuality of the patient must take second place to the teaching institution's primary objective of educating the medical student and interne, and of widening the experience of the resident.

Although a chapter has been devoted to first admissions, the patient who is in the hospital for the first time is somewhat neglected, in this book, and emphasis is given to the problems of patients with chronic diseases and multiple hospital admissions.

Nurses, in particular, should read this book, for it points up the confusion regarding the role of the nurse within the wards of the hospital. But her role is left unclarified.

It is interesting to observe the differences in responsibility and authority that the nurse has in the medical and in the surgical wards. The author's comments on this topic confirm my own experience.

Overall, the nurse is shown as a "follower" team member, who shows no initiative and is willing to avoid responsibility, but who still would like to stake out a place for herself in the total picture. Incidentally, it is difficult to justify current curricula in nursing education on the basis of the work that a nurse actually does, as this study describes it.

This is a worthwhile and readable book, and it should appeal to medical people who have little time for reading. It should be especially valuable for those still in the process of formal education.—*Sydney Scott,* R.N., Clarinda Mental Health Institute.

GYNECOLOGIC AND OBSTETRIC PATHOLOGY, FIFTH EDITION, by *Edmund R. Novak,* M.D., and *J. Donald Woodruff,* M.D. (Philadelphia, W. B. Saunders Company, 1962. $16.00).

This fifth edition of Novak's GYNECOLOGIC AND OBSTETRIC PATHOLOGY is the first that Dr. Novak didn't take an active part in preparing. A classic in its field, the text remains basically the same, although a number of chapters have been revised. Dr. R. E. Nesbitt has added a new section on abortion, and Dr. John K. Frost has brought the chapter on cytology up to date.—*Austin E. Schill,* M.D.

BOOKS RECEIVED

OFFICE PROCEDURES, SECOND EDITION, by *Paul Williamson,* M.D. (Philadelphia, W. B. Saunders Company, 1962. $13.50).

THE HEMORRHAGIC DISORDERS, SECOND EDITION, by *Mario Stefanini,* M.D., and *William Dameshek,* M.D. (New York, Grune & Stratton, Inc., 1962. $21.50).

ERYTHROPOIESIS, ed. by *Leon O. Jacobson,* M.D., and *Margot Doyle,* Ph.D. (New York, Grune & Stratton, Inc., 1962. $6.75).

MEDICINE IN THE UNITED STATES AND THE SOVIET UNION, by *Dr. George A. Tabakov.* (Boston, The Christopher Publishing House, 1962. $4.95).

HARE-LIPS AND THEIR TREATMENT, by *A. B. LeMesurier,* M.D. (Baltimore, The Williams & Wilkins Company, 1962. $7.00).

SYNOPSIS OF GENITOURINARY DISEASE, SEVENTH EDITION, by *Austin I. Dodson, Jr.,* M.D., and *J. Edward Hill,* M.D. (St. Louis, The C. V. Mosby Company, 1962. $7.75).

DIRECT PSYCHOANALYTIC PSYCHIATRY, by *John N. Rosen,* M.D. (New York, Grune & Stratton, Inc., 1962. $7.00).

MALPRACTICE LAW DISSECTED FOR QUICK GRASPING, by *Charles L. Cusumano.* (New York, Medicine-Law Press, Inc., 1962. $10.00).

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing on page vii in this issue:

WARREN—SURGERY
A valuable new volume emphasizing today's principles of surgical disease rather than mere mechanical techniques.

SCHMEISSER—A CLINICAL MANUAL OF ORTHOPEDIC TRACTION TECHNIQUES
Clearly describes and illustrates the application and advantages of traction in the management of common fractures.

WECHSLER—CLINICAL NEUROLOGY
Helpful information on the diagnosis and management of virtually every clinical neurologic problem you'll meet in daily practice.

Iowa Chapter of the
American Academy of General Practice

Introducing Medical Students to General Practice*

JAMES A. BROOKS
President, Student American Medical Association

Each of us has a concept of the position of the GP in the medical world today. In many respects, however, the concept of it that medical students hold and that which is held by the general practitioner are not quite the same. Part of this discrepancy exists because of understandable situations separating the differing worlds of the GP's and of the medical students, and part is inexcusable, to be explained only by a failure in establishing communications.

Let us deal first with what I believe to be the understandable, and this takes us directly to the medical center and the teaching institution. During the process of acquiring a medical education you were exposed—and I am being exposed—to four years of intensive training that I like to refer to as formal education. This formal education takes place in an octopus-like organization of which the training of medical students is only one function. The faculty is comprised of some dedicated teachers and many devoted research people. All in all, each phase of medicine is taught by highly specialized specialists.

This then is my first point: By the nature of things, the general practitioner is largely excluded from participating in formal medical education, and the medical student is exposed to specialized specialists.

The second point lies in the gray zone between the understandable and the inexcusable, but can more appropriately be placed with the inexcusable. This is a more delicate and intangible situation, but very real. I'm sure many of you have been told, in conversations with medical students, that at a particular school, individual members of the faculty make it very plain that the GP is incompetent, etc., and that no self-respecting medical student would contemplate a career in general practice. I am happy to say that this situation does not exist in my school, and I hasten to assure you that in saying so I am not making a political statement designed to get me off the hook if my dean were to confront me with what I am saying here today. I have heard many times from other medical students that this situation does exist at their institutions. Though these students may not hear the explicit statements that GP's are, in general, incompetent, they are left to infer it, many times, when the general practitioner is made the "scapegoat" for some medical mistake that occurred. I am referring here to the case that has been sent to a medical center because of mismanagement, and the patient arrives at the hospital in a moribund state. This is almost always, in my limited experience, blamed on the "backwoods GP" who has attempted to practice medicine that is beyond his skill and training. Certainly this happens, but I should be willing to wager that many times the allegedly incompetent GP is really a competent physician. He merely has made a mistake, or an error in judgment.

The third big factor that I think contributes to this problem consists of the awe-inspiring, nebulous criteria that hospitals must satisfy if they are to be accredited. The medical student is likely to think that if a hospital is accredited (by whom and by what he does not know), every doctor there must be a board qualified surgeon if he is to outfit himself in a scrub suit. At the present time I am treading on dangerous ground, for I am not familiar with all aspects of the accreditation of hospitals, but it is my impression, on the contrary, that admission to a staff and to surgical or whatever other privileges needs not be impossible for the GP, but depends on his qualifications as judged by a committee of staff doctors within that hospital.

This misconception about hospital privileges and the nebulous cloud that surrounds the individual GP's status on a hospital staff constitute a strong deterrent against a student's contemplating a career as a general practitioner. This situation has resulted entirely from inadequate communication, and requires clarification for the medical student.

THE SEARS-SAMA PRECEPTORSHIP PROGRAM

There are two ways in which this situation can be remedied, and both are in an area which I should like to call informal education, as opposed to formal education. The first is the preceptorship, and the second in informing the student about the

* Excerpts from an address that Mr. Brooks delivered at the AAGP State Officers' Conference.

ramifications of general practice in an organized manner.

As many of you are aware, the Student American Medical Association has been working at the establishing of preceptorships in general practice. Last year, with the advice and assistance of your group, we attempted to set up pilot programs at three medical schools. As yet, the effectiveness of these programs cannot be evaluated because enough time has not elapsed. We are presently engaged in a program with the Sears-Roebuck Foundation under which we have placed eight medical students with general practitioners in Sears rural-community projects. Two crucial features of the SAMA-Sears preceptor program are: (1) the student spends two months in the program; (2) he receives a stipend and room and board while participating in the program.

It is my opinion, and the opinion of many other students, that two-week preceptorships are only slightly more valuable than nothing at all. A program should be two to three months long in order to give the student a real look at medicine from the general practitioner's viewpoint. The second item in question concerns the inevitable finances. I don't intend to harangue you about the state of the medical student's billfold, the high rate of marriage among medical students, etc., but these are definite drawbacks to the instituting of a preceptorship program, and somehow a reasonable stipend must be arranged for the student if practical general-practice preceptorships are to become a reality.

During my medical school education, I personally have been fortunate enough to have had three summers with a general practitioner, and I think they have been invaluable in giving me an honest and straightforward look at medicine in my section of the country. Both the AAGP and SAMA must work actively towards a realistic approach to preceptorship programs if today's medical student is to have an honest opportunity to become a GP.

HELP NEEDED FROM THE GENERAL PRACTITIONERS

There must be a closer liaison between the GP and the medical student. One of the precepts under which the Student American Medical Association operates is that it should supplement the formal education of the medical student, as much as possible, and this is one area in which greater effort—or perhaps a beginning—is essential. Most of the 77 SAMA chapters would welcome programs put on by local general practitioners, explaining general practice and dispelling some of the myths surrounding it. In addition, it might be appropriate and helpful if someone from your group would write an article for our SAMA journal dealing with this same problem. I want to encourage you to take the initiative in establishing contact with your local SAMA president in arranging such a program as I have briefly outlined here. If you are hesitant about doing this but are interested in having such a program, I should consider it a favor if you would get in touch with me through our national office, so that we can arrange for a chapter president in your area to get in touch with you. I would make the same plea to you that I make to my own people: Don't be afraid to take the initiative! If it is important to have general practitioners—and I believe it is—then it must be worth a little extra effort.

CONCLUSION

In closing, let me say that even at my early stage in medicine, I always try to remember that the word *physician,* in the original Greek, meant "teacher," and I regard teaching as a part of the job that I shall do as a physician. Further, I consider it part of the job that the general practitioner must undertake, if the number of general practitioners is to increase rather than to decrease. I hope I shall be able to retain this concept, and that you will use it to bring general practice to the attention of the medical student.

Closing Wounds Without Stitches

A new microporous tape material, used in place of thread sutures to close wounds, will not only make scars from incisions and lacerations less disfiguring, but will definitely reduce the incidence of postoperative infections, according to evidence presented to surgeons at an invitational seminar in New York City on October 16.

Dr. Charles A. Hufnagel, professor of experimental surgery at the Georgetown University Medical School, Washington, D. C., who served as chairman of the session, said that he had "favorable" results with the closure technic in major surgical cases showing that "size and complexity of incision shape does not preclude its use." Ten speakers at the meeting reported results from the use of the material on a total of more than 6,000 patients.

The advantages of using the tape, according to Dr. Richard J. Otenasek, Jr., of Johns Hopkins Hospital, Baltimore, are "the absence of infection, the generally good approximation of skin edges and wound healing, and the elimination of suture removal." He said that in 39 of 46 neurosurgical patients, the closures showed "good cosmetic results." Dr. Albert H. Levy, of the V. A. Hospital at East Orange, New Jersey, said that skin puncture wound strangulation, and foreign body irritations in the superficial tissues can all be avoided by proper approximation of the wound margins with the adhesive strips. He reminded his hearers that the method isn't altogether new. In fact, it was described in the oldest known medical writings. But previous adhesive tape irritated the skin and had other disadvantages.

The tape is a development of Minnesota Mining and Manufacturing Company, and is marketed under the trade name "Steri-Strips."

Hearing Conservation

The Role of the Otologist

The conservation of any human function is primarily a medical responsibility. Hearing conservation is no exception. Prevention, diagnosis and treatment of hearing loss, validation and approval of audiometric records, and final assessment of hearing measurements are medical responsibilities. Any hearing conservation program without medical consultation must be considered inadequate.

Supervision and responsibility are inseparable. There are certain limits of ability to supervise and accept responsibility for a total hearing conservation program which are results of the training (or lack of training), experience, and motivation of any individual. This is true of physicians and of all the education and health oriented personnel who must take part in a comprehensive hearing conservation program. It is true also of some of our otologists who do not keep themselves current on the rapidly developing advances in the understanding of ear diseases, advances in methods of testing hearing, and advances in both surgical and medical treatment—to mention a few.

The busy physician who has no special interest in the field of otology accepts this situation—if he knows where to refer a given case for adequate supervision. It is accepted also by highly trained personnel in the fields of audiology, electronics, psychology, speech pathology, and the many other professional fields that offer so much to the full program of hearing conservation.

The otologist should be the ultimate source of information for all medical and related phases of the program of hearing conservation. He has the final responsibility to provide a fully-coordinated, accurate answer to the problems in this field, to the end that the program will be as successful as it is humanly possible to make it.

It therefore follows that he will keep himself abreast of current developments in the field of otology, psychology, neuro-otology, audiology, communication, education and general medicine. He must serve actively on committees for hearing conservation. He must be available for talks and discussions with all physicians to help disseminate accurate knowledge relative to the detection, treatment and habilitation or rehabilitation of persons with all degrees of hearing loss.

He is most happy to assist departments of special education in their problems in our school system. He is also available to industry and labor for early detection and management of hearing loss from noise damage. He is available to the educators also to discuss standards for training of students in the medical aspects of audiology and speech pathology.

He is available for advice in the various aspects of audio-analgesia which are of current interest to the dental profession. He should also maintain liaison with the hearing-aid manufacturers and dealers, that he may know and help evaluate new developments in this industry, and suggest standards of ethics for these groups.

The otologist must serve as a source of information regarding the results of past and present research in the broad fields of detection, treatment, and prevention of hearing loss. He must be willing to counsel and assist the personnel of all of the many disciplines that are interested in the problems of hearing.

By this means he will enable the medical profession to accept fully its responsibility in the conservation of this important function.

The Committee on the Conservation of Hearing for the State of Iowa, which is presenting a series of articles in the JOURNAL, consults with and advises all agencies interested in the problems of hearing impairment. Its services are available to industry, agriculture, education and to the broad spectrum of public health and welfare services within the state.

The Committee has been officially sponsored by the Iowa State Department of Health since 1957. However it was first formed in 1949, and has been continuously active under the leadership of Dr. Dean M. Lierle, head of the Department of Otolaryngology and Maxillofacial Surgery at S.U.I. From the first, the Committee has been interdisciplinary in composition and purpose.

The Committee presently consists of: C. M. Kos, M.D. (chairman), otologist in private practice, Iowa City; Joseph Wolvek (executive secretary), consultant, Hearing Conservation Services, State Department of Public Instruction, Des Moines; M. G. Barillas, assistant director for Special Services Division of Vocational Rehabilitation, Des Moines, Iowa; L. E. Berg, superintendent, Iowa School for the Deaf, Council Bluffs; Dale S. Bingham, consultant, Speech Therapy Services, State Department of Public Instruction, Des Moines; Paul Chestnut, M.D., private practitioner and member of AAPG, Winterset; James F. Curtis, Ph.D., head, Department of Speech Pathology and Audiology, S.U.I., Iowa City; Madelene M. Donnelly, M.D., director, Division of Maternal and Child Health, State Department of Health, Des Moines; Joseph Giangreco, assistant superintendent, Iowa School for the Deaf, Council Bluffs; Malcolm Hast, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City; Byron Merkel, M.D., otolaryngologist in private practice and member of Academy of Otolaryngology and Ophthalmology, Des Moines; William Prather, Ph.D., Department of Speech Pathology and Audiology, S.U.I., Iowa City; Mrs. Jeanne Smith, Department of Otolaryngology and Maxillofacial Surgery, S.U.I., Iowa City; Edmund Zimmerer, M.D., commissioner, State Department of Health, Des Moines.

IOWA INTERPROFESSIONAL ASSOCIATION
COUNTY MEDICAL CIVIL DEFENSE AND DISASTER COMMITTEES

CIVIL DEFENSE AREA I

County	*Medical Society** (M.D.)	*Dental Ass'n* (D.D.S.)	*Veterinary Ass'n* (D.V.M.)	*Pharmaceutical Ass'n* (B.Ph.)	*Hospital Ass'n*	*Nurses Ass'n* (R.N.)
Adair	A. J. Gantz Greenfield	C. L. Nassen Greenfield	C. R. Flickinger Greenfield	Gordon Murdy Greenfield	Miss Myra Belvel Greenfield	Stacia Hoffman Adair
Adams	A. W. Brunk Prescott	H. F. Muschamp Corning	E. H. Cunningham Corning	Maurice Dunham Corning	Sister Mary Monica Corning	Theo Bauer Corning
Boone	W. G. Dennert Boone	F. F. Sunstrom Boone	G. W. Cornwell Boone	Wes Herrald Boone	D. D. Wightman Boone	Helen Burke Boone
Clarke	G. I. Armitage Osceola	E. W. Paul Osceola	G. E. Lewis Osceola	Bayard Shadley Osceola	Yvonne Perry Osceola	Eva Crawford Osceola
Dallas	R. F. Deranleau Perry	H. C. Banwart Adel	E. A. Gubser Adel	Kenneth Oelrich Adel	Myrtle Rufus Perry	Harriet Tripp Perry
Decatur	W. N. Doss Leon	C. C. Scott Leon	C. C. Clark Lamoni	Steve Young Leon	Lloyd Black Leon	Mildred Ellis Leon
Greene	G. F. Canady Jefferson	A. L. Beardslee Jefferson	J. V. Wand Jefferson	Harold Woodruff Jefferson	David Rykhus Jefferson	Erneva Eggimin Jefferson
Guthrie	D. W. Todd Guthrie Center	R. C. Griffith Guthrie Center	W. W. Cook Stuart	John Doud Guthrie Center	Margaret Kindred Guthrie Center	Catherine Adams Guthrie Center
Jasper	John Maughn Baxter	L. M. Stanton Newton	R. D. Irvine Newton	Jack Perryman Newton	Larry Pugh Newton	Ann Bower Newton
Lucas	A. L. Yocum Chariton	M. Fisher Chariton	R. V. Lewis Chariton	Loren Edwards Chariton	Robert Sherman Chariton	Mrs. Wm. Corkey Chariton
Madison	P. F. Chesnut Winterset	C. O. Koehn Winterset	D. M. Griswold Winterset	James R. Nelson Winterset	Thurman Russell Winterset	Mrs. R. E. Clarkson Winterset
Marion	Y. Sloterdyk Knoxville	E. V. Feldman Knoxville	R. C. Scott Knoxville	Keith Baker Knoxville	A. L. Olson, M.D. Knoxville	Dorothy Craig Vets Hospital Knoxville
Marshall	E. J. Marble 205 W. Main Marshalltown	D. D. Baker 3½ W. Main Marshalltown	G. E. Schoel State Center	Emil Emeis Marshalltown	Sister Mary Magdalene Marshalltown (Mercy Hospital)	Calista Croker 113 N. First Street Marshalltown
Polk	R. H. Riegelman 611 Equitable Bldg. Des Moines		S. L. Hendricks 2924 Rutland Ave. Des Moines	James Keller Triangle Drug Des Moines	Al Parmenter Still College Des Moines	Ruby E. Wheatly 301 E. Third Street Ankeny
Ringgold	D. E. Mitchell Mt. Ayr	C. W. Lawhead Mt. Ayr	M. G. Pool Mt. Ayr	Barney Horne Mt. Ayr		Janet Link Mt. Ayr
Story	G. J. Hegstrom Ames	R. E. Feldman Ames	P. E. Smith 2126 Greeley Ames	John Roche Apothecary Shop Ames	J. G. Grant, M.D. Ia. State University Ames	Mrs. Susan Champlin Ames
Taylor	R. W. Boulden Lenox	C. W. Steward Bedford	V. U. Thomson Clearfield	Eugene Tyler Lenox	No Hospital	Helen O'Grady Conway
Union		John W. Cruise Creston	J. P. Stream Creston	Alan Russett Creston	Delmar Richardson Creston	Olive Lonnecker Creston
Warren		Phil West Indianola	H. L. Arand Indianola	James Rouch Indianola	No Hospital	Marion Stump Indianola
Wayne	C. F. Brubaker Corydon	Robt. Dubey Corydon	L. J. Freese Corydon	Myron Allred Corydon	Monte Welker Corydon	Mrs. Leah Woodring Humeston

CIVIL DEFENSE AREA 2

Appanoose	A. S. Owca Centerville	E. D. Kelley Centerville	J. C. Noland Centerville	John Fitzgerald Centerville	Sister Mary Jeanette Centerville	Dorothy L. Green Centerville
Davis	J. R. Mincks Bloomfield	W. H. Schlegel Bloomfield	R. E. Rasmussen Bloomfield	Ralph Bitner Bloomfield	Miss Dorothy Broerman Bloomfield	Mary Spargur Bloomfield
Des Moines	R. B. Allen F & M Bank Bldg. Burlington	Paul Hippe Burlington	R. J. Cowles Veterans Hospital Burlington	C. W. Burns 2218 S. Third St. Burlington	Paul Keiser Burlington Hospital Burlington	Zelda Wilson Burlington Hosp. Burlington
Henry	J. Stewart Jackson Mt. Pleasant	Dean Frish Mt. Pleasant	J. N. Hunt Mt. Pleasant	Leo Brau Mt. Pleasant	Lynn Byrne Mt. Pleasant	Alice Crawl Mt. Pleasant
Jefferson	K. H. Strong Fairfield	L. B. Carter Fairfield	J. Q. Bell Fairfield	Dick Roth Fairfield	Lewis Heghin Fairfield	Marjorie Horton Fairfield
Lee	G. J. McMillan Ft. Madison	A. J. Kokjohn Ft. Madison	H. G. Dow Ft. Madison	Wes Brown Keokuk	John Unglaub Keokuk	Maxine Amborn— Ft. Madison (North) Esther Clark— Keokuk (South)
Monroe	W. S. Chester Albia	J. J. Bates Albia	C. P. Peterson Albia	Richard Love Albia	James Starcevic Albia	Hilda Kendrick Albia
Van Buren	J. T. Worrell & K. Furumoto Keosauqua	C. R. Perkins Keosauqua	S. G. Lindsay Bonaparte	Ed Brothers Keosauqua	Ray Mullens Keosauqua	Mina Biggs Keosauqua
Wapello	Sidney Brody 201 Jefferson Sq. Ottumwa	B. C. Bickford Ottumwa	Barry O. Barnes 2305 N. Court Rd. Ottumwa	Franklin Kent 222 W. Manning Ottumwa	Richard G. Schreiber Ottumwa Hospital Ottumwa	Anna B. White Court House Ottumwa

CIVIL DEFENSE AREA 3

Cedar	George Utley Clarence	H. J. Harris Tipton	R. C. Reuter Bennett	Jim Reeve Tipton	No Hospital	Eleanor Weisman Bennett
Clinton	Arno Jensen 1109 N. Second St. Clinton	C. G. Boardway Clinton	E. A. Rolston 2103 Harrison Clinton	George Wagner Wagner Pharmacy Clinton	Forrest Krauss Jane Lamb Mem. Hosp. Clinton	Rachel Morsing 961 South 18th Clinton
Jackson	L. B. Williams Maquoketa	Donald E. Roeder Maquoketa	M. O. Pitcher Maquoketa	Bryon Hatter Maquoketa	Frederick Sage Maquoketa	Eloise Evans Maquoketa
Louisa	E. S. Groben Columbus Junction	Roy Ostrem Columbus Junct.	H. C. Lowe Columbus Junct.	Warren May Columbus Junct.	No Hospital	Mrs. Gladys McClurken Wapello
Muscatine	V. W. Swayze 324 E. Second St. Muscatine	J. A. Trevorthen 309 Hershey Bldg. Muscatine	G. E. Barrington 1501 Park Ave. Muscatine	M. J. Brammer Henderson Drug Muscatine	J. W. Myers Muscatine Gen. Hosp. Muscatine	Sally Bailey 410 Lee Street Muscatine
Scott	Gordon Gray 401 W. Locust Davenport	R. C. Wienert 400 1st Nat. Bldg. Davenport	M. H. Lang 2123 Brown St. Davenport	Ralph Smith 806 E. 29th St. Davenport	Leon A. Bondi St. Luke's Hosp. Davenport	Irene Roney 1404 West 14th Davenport

CIVIL DEFENSE AREA 4

Benton	D. C. Weideman Vinton	J. P. Foote Belle Plaine	M. C. Larson Keystone	Fred Wright Vinton	George Garwood Vinton	George Garwood Vinton
Iowa	Robert Meger Victor	R. B. Galbraith Marengo	J. E. Riggenbach Williamsburg	G. Peterson Marengo	Mrs. Erna Anderson Marengo	Donna Worthington Marengo
Johnson		J. D. Whisenand 108½ E. Wash. Iowa City	J. G. Irwin 512 S. Dubuque Iowa City	J. E. Anderson 1425 Plum St. Iowa City	D. R. Williamson University Hospitals Iowa City	Doris Jones 609½ E. Bloomington Iowa City

* The physician was appointed county committee chairman for each county by the IIA.

County	*Medical Society* (M.D.)*	*Dental Ass'n (D.D.S.)*	*Veterinary Ass'n (D.V.M.)*	*Pharmaceutical Ass'n (B.Ph.)*	*Hospital Ass'n*	*Nurses Ass'n (R.N.)*
Jones	G. F. Brown Anamosa	A. N. Thevarthen Anamosa	Earl Wahl Anamosa	Robt. Osterhaus Anamosa	Martin Wade Monticello	Mirian Serbousek Anamosa
Keokuk	J. S. Hooley Sigourney	G. G. Goldthwait Sigourney	R. T. Speaker Keota	Wayne Olson Keota	Dan Kent Sigourney	Mrs. Hannah Hartsaw Sigourney
Linn	L. B. Sedlacek 412 19th St. S.E. Cedar Rapids	M. D. Katzoff 323 Guaranty Bldg. Cedar Rapids	R. A. Anthony Box 172 Cedar Rapids	Dave Tower Paramount Pharmacy Cedar Rapids	B. M. Grahek Mercy Hospital Cedar Rapids	Phyllis Jass 1600 Wildwood Drive Cedar Rapids
Mahaska	R. M. Collison 1225 C. Ave. E. Oskaloosa	K. S. Bowie 211 High Ave. E. Oskaloosa	M. N. Nuckolls 1307 A. Ave. E. Oskaloosa	Gale Stapp Stapp Pharmacy Oskaloosa	Leslie Nash Mahaska Co. Hosp. Oskaloosa	Marion H. Smith Court House Oskaloosa
Poweshiek	R. Sparks Lynnville	A. W. Brock Grinnell	J. M. Barclay Brooklyn	Don Cunningham Grinnell	Harold Hauberg Grinnell	Nancy Buitendorp Grinnell
Tama	R. W. Linthacum Dysart	M. H. Hoffer Toledo	H. D. Osborne Gladbrook	C. Wuest Dysart	No Hospital	Hazel M. Anthes Tama
Washington	G. J. Nemmers Washington	G. J. Krogmeir Washington	A. C. Peterson Washington	Norman Schoonover Washington	Norman Jensen Washington	Mrs. Nate Young 919 S. 4th Ave Washington

CIVIL DEFENSE AREA 5

Allamakee	Clark Rominger Waukon	J. F. Meierkord Waukon	R. F. Schneider Postville	Dan Regan Waukon	Louis Mardin Waukon	Henrietta Gronlid Waukon
Black Hawk	C. C. McIntyre 601 Baltimore Waterloo	D. Felcher 806-10 Black Bldg. Waterloo	R. L. Winegarden 1106 Sycamore Waterloo	Robert Cooling 100 Cedar Bend Waterloo	Roland Enos Schoitz Memorial Hosp., Waterloo	Lois Sherman Cedar Falls
Bremer	W. D. Perrin Sumner	Charles Kromer Waverly	E. C. Ritter Sumner	Scott Whitney Waverly	Sister Mary Regis Waverly	Mrs. Doris Jones Shell Rock
Buchanan	N. L. Hersey Independence	R. L. Kimball Independence	A. J. Murphy Winthrop	Jack McGrane Independence	Keith Campbell Independence	Darlene Sickert Independence
Butler	E. M. Mark Clarksville	R. Watson Parkersburg	J. P. Hoben Greene	Buddenhagen Allison	No Hospital	Mrs. Vern Larsen Allison
Chickasaw	J. E. Murtaugh New Hampton	Askira Morisako New Hampton	A. J. Nelson Nashua	John Hauth New Hampton	Sister Depacis New Hampton	Mrs. Doretta Gitch Fredericksburg
Clayton	Clyde F. Deal Elkader	M. T. Vincent Elkader	D. R. Fields Monona	Milton Schmidt Guttenberg	Mrs. Arthur Schade McGregor	Gill Card McGregor
Delaware	W. J. Mehrl Manchester	Edward L. Feld Manchester	R. E. Cooney Manchester	C. H. Groves Manchester	Nellie McLaren Manchester	Mollie Robinson Manchester
Dubuque	Paul J. Laube 1340 Dodge St. Dubuque	F. Plass 603 Roshek Bldg. Dubuque	M. M. Vanderloo Asbury Road Dubuque	James Weinberger 1696 W. Third Dubuque	A. H. Richardson Finley Hospital Dubuque	Dorothy Kinney 418½ Almond Dubuque
Fayette	Robert Jaggard Oelwein	J. L. Roling Oelwein	Lester Proctor Oelwein	Dale Schuchmann Oelwein	Wallace Brudvig West Union	Mrs. Francis Daniels Oelwein
Floyd	W. C. Baltzell Charles City	D. R. VonBerg Charles City	P. E. Maland Charles City	Bill Weinberger Charles City	E. E. Sears Charles City	Edythe Diederich Charles City
Grundy	J. E. Rose Grundy Center	A. W. Redding Grundy Center	D. A. Buchanan Grundy Center	John Ehlers Grundy Center	Max Arthur Grundy Center	Mrs. Dale Smith Grundy Center
Howard	Abner Buresh Lime Springs	G. R. Hill, Jr. Cresco	Orlo Haight Cresco	Gary Boeke Cresco	Sister Mary Markita Cresco	Mrs. Gary Boeke Cresco

Mitchell	Leonard Lackore St. Ansgar	E. K. Allen Osage	R. H. Baum Osage	Bob Dreyer Osage	Harris W. Feldick Osage	Louise Dieterich Osage
Winneshiek	J. A. Bullard Decorah	O. J. Berg Decorah	R. N. Overland Decorah	C. O. Lamp Decorah	Donald Stubsten Decorah	Mrs. Robt. Bernatz Decorah

CIVIL DEFENSE AREA 6

Calhoun	P. Van Metre Rockwell City	R. W. Fonda Rockwell City	J. R. Rosdail Pomeroy	George Huff, Jr. Rockwell City	Alan Blades Lake City	Mrs. Leo Shumann Rockwell City
Cerro Gordo	B. R. Weston Mason City	R. E. Calhoun Clear Lake	Delmar Dierchs Rockwell	R. D. Casey Mason City	J. J. Krapek Mason City	Edna Beyer 708 North Penney Mason City
Emmet	J. L. Powers Estherville	Bill Boise Estherville	L. F. Bunge Estherville	Joe Hoye Estherville		Lucille Wiegman Estherville
Franklin	R. E. Munns Hampton	Robert Moore Hampton	L. A. Osborn Hampton	Max Bokmeyer Sheffield	Wilbur Weber Hampton	Alberta Cockram Sheffield
Hamilton	Bruce Howar Webster City	J. B. Harris Jewell	C. L. Nelson Jewell	Leonard Thompson Webster City	Gordon Soncrant Webster City	Mrs. H. W. Thompson Webster City
Hancock		Harold Morgan Britt	R. T. Howard Kanawha	Jim Christ Kanawha	Mrs. Bertha Dean Britt	Irma Peterson Britt
Hardin	R. B. Sherman Ackley	Albert Harper Iowa Falls	R. J. Peglow Iowa Falls	Art Boeke Hubbard	Henry J. Schmitz Eldora	Gretchen Graham Iowa Falls
Humboldt	J. H. Coddington Humboldt	W. W. Warren Humboldt	S. D. Linn Humboldt	Charles Larson Humboldt	No Hospital	
Kossuth	Joseph M. Rooney Algona	LeRoy Strohmen Algona	E. J. Capesius Whittemore	Bless Rusk Algona		Joyce Hayden Algona
Palo Alto	C. C. Moore Emmetsburg	C. L. Teeter Emmetsburg	W. R. Marks Emmetsburg	Charles Hughes Emmetsburg	Mrs. Veneta Sweeney Emmetsburg	Mary Umscheid Emmetsburg
Pocahontas	W. F. Brinkman Pocahontas	J. T. Tolan Pocahontas	L. W. Feldman Rolfe	Paul Nickerson Pocahontas	No Hospital	Pauline Pavlik Pocahontas
Webster	D. E. Tyler 120 Phys. Bldg. Ft. Dodge	Truman Anderson Ft. Dodge	H. Engelbrecht Ft. Dodge	Jerome Hammes Clinic Pharmacy Ft. Dodge	James A. Anderson Lutheran Hosp. Ft. Dodge	Ruby Thomsen 302½ N. Ninth Ft. Dodge
Winnebago	J. T. Mangan Forest City	K. T. Larson Lake Mills	C. L. Syverson Lake Mills	Howard Miller Buffalo Center	Alfred Heitland Buffalo Center	Mrs. Bette Sarno Lake Mills
Worth	M. P. Allison Northwood	H. F. Johnson Northwood	L. M. Farland Northwood	John Veenker Northwood	No Hospital	Arlene Vivian Baia Northwood
Wright	R. C. Eaton Clarion	Walter Brauer Clarion	R. E. Misner Belmond	Don Nolan Belmond	Marc Ihm Belmond	Vivian Saunders Belmond

CIVIL DEFENSE AREA 7

Buena Vista	T. E. Shea Storm Lake	F. C. Bridge Storm Lake	R. W. Brown Storm Lake	Robt. Ohrlund Storm Lake	John Tomich Storm Lake	Pearl Hall Storm Lake
Cherokee	M. D. Hayden Cherokee	E. C. Hagen Cherokee	J. K. Dewar Cherokee	Mrs. Mildred W. Thompson Cherokee	Kenneth Hobson Cherokee	Wilma Sawyer Cherokee
Clay	E. E. Munger, Jr. Spencer	George Frazer Spencer	D. R. Wehler Everly	O. A. Bjornstad Spencer	Mrs. Myrna Soholm Spencer	Bertha Asher Spencer
Crawford	R. M. Johnson Denison	H. H. Vosgerau Denison	K. A. Doyle West Side	C. N. Johnson Denison	W. R. Shultz Denison	Helma La Frentz Dow City

* The physician was appointed county committee chairman for each county by the IIA.

County	*Medical Society* (M.D.)*	*Dental Ass'n (D.D.S.)*	*Veterinary Ass'n (D.V.M.)*	*Pharmaceutical Ass'n (B.Ph.)*	*Hospital Ass'n*	*Nurses Ass'n (R.N.)*
Dickinson	D. F. Rodawig Spirit Lake	B. E. Newell Spirit Lake	Dewey Hobson Spirit Lake	Joe Bevins Spirit Lake	Floyd Kanne Spirit Lake	Helen Von Housen Spirit Lake
Ida	J. B. Dressler Ida Grove	Leo Sampson Ida Grove	D. M. Stauch Battle Creek	Joe Heffron Ida Grove	Wanda Peper Ida Grove	Helen Ericksen Ida Grove
Lyon	H. H. Gessford George	Henry DeJong George	E. L. Prouse George	C. C. Brugmann Rock Rapids	Mrs. Naomi Ide Rock Rapids	Evelyn Garnmeister Rock Rapids
Monona	L. A. Gaukel Onawa	Carl Hopkins Onawa	W. A. Parks Onawa	Claire Harris Onawa	Charles Wisnaski Onawa	Annabel Hopkins Whiting
O'Brien	Ivan E. Brown Hartley	John Schiltz Paullina	E. R. Hemerson Sheldon	C. B. Faust Sheldon	Lillian Eidsness Sheldon	Betty D. Eeton Hartley
Osceola	T. J. Carroll Sibley	G. M. Fisch Rock Rapids	C. J. Primising Melvin	J. H. Diebner, Jr. Sibley	Frances B. O'Leary Sibley	Catherine Bosch Sibley
Plymouth	S. E. Lindell LeMars	Paul Johnson LeMars	W. H. Faber LeMars	George Mount LeMars	Sister Mary Amabilis LeMars	Elizabeth Endmann LeMars
Sac	John Hubiak Odebolt	M. D. Gruber Sac City	C. L. Page Odebolt	Bob Nedrow Sac City	Walker Abrams Sac City	Anna C. Carlson Odebolt
Sioux	M. O. Larson Hawarden	Henry DeJong George	R. K. Fisher Orange City	Lynn Booth Hawarden	Mrs. Roberta Colon Sioux Center	Marian Pasewalk Hawarden
Woodbury	E. M. Honke 618 Davidson Bldg. Sioux City	Frank Epstein Sioux City	E. G. Cole 510 West 19th Sioux City	T. T. Dittrich Key Drug Store Sioux City	James L. Dack Methodist Hosp. Sioux City	Florence Limback 1417 Hill Ave. Sioux City 4

CIVIL DEFENSE AREA 8

Audubon		J. C. Ramsey Audubon	J. W. Sulcliffe Audubon	Blaine Kearney Audubon	Mrs. Lois Budatz Audubon	Mrs. K. Christensen Audubon
Carroll	Leo H. Kuker Carroll	H. E. Deur Carroll	R. W. Collison Carroll	Gereld Rettenmaier Carroll	Sister Mary Regine Carroll	Mrs. A. Schleisman Carroll
Cass		E. G. James Atlantic	A. B. Hillhouse Atlantic	Anthony Dvorak Atlantic	Melvin Clothier Atlantic	Mrs. Marlo Meyer Atlantic
Fremont	K. D. Rodabaugh Tabor	L. D. Strong Sidney	W. D. Cotter Tabor	William Penn Sidney	Josephine Sherman Hamburg	Dorothy Ryan Hamburg
Harrison	F. G. Sarff Logan	Russell Sadler Missouri Valley	R. A. Moore Dunlap	Donn Lenihen Logan	Marion Vuylstek Missouri Valley	Elizabeth Morkley Logan
Mills	E. C. Magaret Glenwood	J. R. Beckwith Malvern	R. S. Troutman Glenwood	H. Schlickerveer Glenwood	No Hospital	Ruth Grindle Glenwood
Montgomery	F. A. Hansen Red Oak	H. W. Sidwell Villisca	S. L. Davis Red Oak	Paul McKenzie Red Oak	Donald Carter Red Oak	Elizabeth Smidt Red Oak
Page		D. D. Ray Shenandoah	R. J. Haxby Clarinda	Helen Kline Shenandoah	Donald Jackson Clarinda	Florence Merker Shenandoah
Pottawattamie	I. V. Sternhill 215 Bennett Bldg. Council Bluffs	W. R. Sanders Council Bluffs	R. D. Wunder Avoca	Jim Ross Oard-Ross Drug Council Bluffs	R. B. Fulcher Jennie Edmundson Hosp. Council Bluffs	Helen Paulsen Mercy Hosp. Council Bluffs
Shelby		F. J. Hardy Harlan	E. H. Stock Shelby	Elmer Norgaard Harlan	Cletus Turnbach Harlan	Mrs. E. Mushrush Harlan

* The physician was appointed county committee chairman for each county by the IIA.

THE DOCTOR'S BUSINESS

New Tax Legislation

HOWARD D. BAKER

Waterloo

In October, President Kennedy signed into law two important and far-reaching pieces of legislation. The first of these was the "Self-Employed Individuals' Retirement Act of 1962." Very generally, this Act provides for the establishment, by self-employed persons, of tax-sheltered pension and profit sharing plans beginning after December 31, 1962. Although not as liberal as those for corporate plans, the provisions of this Act do provide a small measure of relief to persons in certain restricted circumstances.

Contributions of 10 per cent of "earned income" up to a maximum of $2,500 per year are allowed. A deduction from income is permitted on 50 per cent of allowable contributions, up to a maximum of $1,250 per year.

In order for a plan to qualify, all employees with three or more years of employment must be included and contributions for their benefit must bear the same ratio to their respective incomes as the contributions made for the benefit of the employer of "owner-employee."

The mandatory inclusion of employees after three years of employment, the arbitrary 50 per cent deduction and the 10 per cent maximum on contributions all serve to "water down" the tax benefit. However, a major obstacle has been surmounted in the passage of this Act after 12 years of sustained effort, and it may be possible in future years to get the Act amended so that professional men and other self-employed people will stand on an equal footing with corporation employees.

After the passage of such a bill, it is always necessary for the Treasury Department to draft administrative regulations amplifying and clarifying the legislative provisions. It is, therefore, advisable for interested physicians to proceed slowly. You should very carefully examine all facets of any plan that is proposed to you, in order to avoid any misconceptions and to avoid being victimized by the misrepresentations of persons with a selfish financial interest in establishing such a plan for you.

Mr. Baker is a partner in Professional Management Midwest, and manager of its Retirement Planning Department. He majored in accounting and business administration at S.U.I., and was an agent of the U. S. Bureau of Internal Revenue for 3½ years before forming his present association in 1953.

TAX CREDIT UNDER THE 1962 TAX LAW

The second important piece of tax legislation signed by the President in October was the "Revenue Act of 1962."

The provisions of this bill are also subject to administrative regulations. The general provisions affecting physicians are as follows:

(1) A 7 per cent tax credit will be granted on qualified investments in tangible-depreciable-personal property after January 1, 1962. Investment in real estate is specifically excluded. The maximum allowable credit is $25,000, plus 25 per cent of the tax liability over $25,000. In order to qualify fully for the investment tax credit, property must have a useful life of eight years or more. Shorter lives down to four years will qualify for partial tax credit.

(2) Entertainment, gifts and travel expense deductions will be subjected to much stricter rules after December 31, 1962, than formerly, and the burden of establishing a direct connection between the expenditure and the taxpayer's business or profession will rest squarely on the taxpayer. Lack of detailed records will result in disallowance.

Major business use of clubs, boats, cottages, airplanes, *et cetera,* must be proved. If these facilities are used less than 50 per cent for business, no deduction is allowable. Business gifts will be limited to $25 per person per year. Travel to meetings and conventions will be subject to a much less liberal apportionment between business and personal.

(3) Gains from the disposition of certain assets after December 31, 1962, will be subject to ordi-

nary-income rather than to capital-gains tax rates, to the extent that depreciation has been taken on the asset. This applies to depreciable personal property other than real estate. This provision will be a very effective obstacle to overdepreciation and a resulting favorable capital-gains treatment upon disposition of the asset.

(4) Information returns will be subject to much stricter requirements, starting in 1963. Dividends or interest of $10 or more paid to any person must be reported to the Revenue Service and the payee. Penalties of up to $20 per payment and an aggregate $50,000 maximum are provided, and strict enforcement is expected.

All aspects considered, these two tax bills are apt to have an appreciable impact upon tax philosophy and accounting in future years.

Exercise May Be a Heart Disease Preventive

Physical activity may offer protection against coronary heart disease, according to a special report on physical fitness in PATTERNS OF DISEASE, a monthly Parke, Davis & Company publication for physicians. Citing a study of standardized morality ratios of persons whose occupations are of different degrees of physical activity, PATTERNS pointed out that "mortality from coronary heart disease was greater among men holding less physically active jobs." This was apparent among men 45 years of age and older and when occupations of the same general mortality risk were compared.

Ratio of deaths from all causes to deaths from coronary heart disease among men with sedentary occupations (such as judges, state and local officials) is 75 to 102; among men with occupations involving light physical activity (such as physicians, brokers and service station attendants), 82 to 94; among those with occupations involving medium physical activity (surveyors, mechanics, mail carriers and bus drivers), 102-81; and in those with occupations involving heavy labor, 140-47.

Another analysis of these deaths revealed a relationship between long working hours and mortality from coronary heart disease. Mortality from coronary heart disease was greater than expected among light workers whose working hours exceeded 48 hours per week, particularly in men under 45 years of age.

Physical activity may also be a safeguard against obesity. According to a study in which the distance walked daily was measured, obese women were 60 per cent less active than nonobese women, and obese men were 40 per cent less active than nonobese men. "Studies have shown," PATTERNS adds, "that obese children are much less active than nonobese children, and that food intake of obese children is about equal to, if not less than, that of obese children."

The number of calories we spend varies with type of exercise and with the individual. Obese persons, for example, expend more energy than nonobese persons in performing the same task. In general, however, we spend 200-300 calories per hour in walking, 200-400 in dancing, 300-900 in swimming, 300 in golfing, and 800-1,000 in running.

Doctors With Medicare Patients, Please Note

The retention of certain servicemen beyond their normal date of expiration of active duty tours has been directed by the Secretary of Defense. Implementation poses many problems. Among them is the valid identification of the extendees' dependents who will remain eligible for certain benefits while their sponsors remain on active duty.

The extension of tours of duty may result in some dependents' being without a valid Identification Card for some time. The basis of identification of dependents is the Uniformed Services Identification and Privilege Card (DD Form 1173). Each card carries an expiration date of eligibility. This date, in the case of dependents of non-career personnel, is the same as the expected expiration date of the sponsor's tour of active duty.

In the past, the "expiration date" on the ID Card has been the governing factor in determining that eligibility still exists. Since the involuntary extension of the tours of duty of many servicemen is effective almost immediately, the probability exists that some still-eligible dependent wives and children may apply for civilian medical care to which they are still entitled. They may not, however, have in their possession the required proof of their eligibility.

No change is contemplated in the provision of the contract which states that claims may not be processed for payment until the dependents have proved their eligibility to receive care. Service personnel will be told that it is their responsibility to take necessary action to "update" the evidence of dependents' eligibility.

It is most probable, however, that some dependents will be in need of authorized medical care from civilian sources prior to the time this action has been completed. In such cases, the dependent has been instructed to explain the situation to the physician and hospital authorities. They have been advised to present, if available, some tangible evidence such as allotment checks, official orders, directives, or personal letters which state the pertinent facts to the physician or hospital to help support the dependent's claim of continued eligibility.

In the Public Interest

The Sixtieth General Assembly Should Provide Funds for

A Kerr-Mills Program for Iowa

On November 21, 1962, the Iowa Board of Social Welfare suggested, at state budget hearings, that the Kerr-Mills Enabling Act passed by the 1961 General Assembly might be implemented in 1963 for an estimated 30,000 individuals 65 years of age or older at an annual cost to the state of $4,000,000. At the prevailing matching formula of approximately 3:2, the federal government would contribute $6,000,000, and the total funds available would be $10,000,000 per year. The Board's estimate is surely adequate, or even generous.

An appropriation to implement Kerr-Mills is to be the principal measure that the Iowa Medical Society will urge the lawmakers to approve during the coming legislative session. The physicians of this state are nearly unanimous in preferring that government subsidies go only to those who cannot pay for health care unaided, and in preferring that the financial as well as the medical needs of the elderly be determined locally. They regard Kerr-Mills as the means through which need can be ascertained, and through which both local control and the economical use of public funds can be assured.

IOWA'S ELIGIBILITY REQUIREMENTS

The Iowa Kerr-Mills Enabling Act grants eligibility to every person 65 years of age or older who:

1. Is a resident of Iowa, or is only temporarily absent from the state.

2. Is not an inmate of a public institution (other than a general hospital), and is not a patient in an institution for tuberculosis or mental diseases.

3. Is not a recipient of Old Age Assistance.

4. Is in need of medical care, as determined by a licensed practitioner of the healing arts.

5. Has paid, or has obligated him or herself to pay, at least $50 for medical care during the previous 12 months.

6. Has no relative or other person or agency legally or contractually responsible and able to provide for his or her care, as determined by the board of social welfare in the county of his or her residence. (A son or daughter shall not be deemed able to contribute to a parent's care if he or she has an income too small to be taxable under Iowa law.)

7. Has an income no greater than $1,500, if single; or no greater than $2,200 per year, together with spouse, if married.

8. Has resources valued at less than $2,000, if single; or at less than $3,000, together with spouse, if married. (The following items are excluded: real estate used as a residence; household goods and furnishings; an automobile; personal effects and tools used in an occupation; and cash value of life insurance.)

THE NUMBER OF ELIGIBLES IS NEARLY IMPOSSIBLE TO ESTIMATE

The number of persons capable of establishing eligibility within the restrictions that have just been enumerated is virtually impossible to estimate. First, the Bureau of the Census provides figures on the incomes of the elderly in brackets of "0-$999" and "$1,000-$1,999," rather than in brackets of "0-$1,499" and "$1,500-$2,199," as would have best suited this purpose.

Second, no figures are available from the Bureau of the Census or from elsewhere on the number of single Iowans 65 years of age and older who have assets valued at less than $2,000, or on the number of married Iowans in that age bracket who have assets worth less than $3,000.

Third, no one, as yet, has any idea about how many elderly people in Iowa have sons, daughters, other relatives, insurance policies, veterans' benefits, fraternal association aids or S.U.I. hospital eligibility that will contribute to the financing of their medical care. It must not be forgotten that the MAA program is intended to supplement whatever resources elderly people already possess.

NORTH DAKOTA'S EXPERIENCE WITH MAA HAS BEEN A PLEASANT SURPRISE

As a guide, the experience of North Dakota for the year beginning July 1, 1961, and ending June 30, 1962, can be pointed out.

The North Dakota legislature appropriated $2,660,000 for the biennium July 1, 1961, to June 30, 1963, which together with federal matching funds at a ratio of approximately 3:1, set up a Kerr-Mills program to cost a maximum of $5,000,000 per year.

According to the 1960 Census, North Dakota had 56,041 individuals 65 years of age or more, and Iowa had 317,974 in that age bracket. The restrictions on eligibility for the program in North Dakota are rather similar to those contained in the Iowa enabling act. The income limits are a bit lower—$1,200 for a single individual, and $2,100 for a couple—but the asset limits are about the same as Iowa's—$2,500 for either a single individual or a married couple, with exclusions similar to Iowa's—and the responsibility of all sons and daughters who must pay state income taxes is insisted upon.

North Dakota received only 1,736 applications for MAA grants, from July 1, 1961, to June 30, 1962, and certified only 1,461 applicants. Of those certified, 84.7 per cent received medical services during the year, and though the average monthly payment was $211 per recipient, at the end of the 12-month period, a total of just $1,425,000 had been expended.

Actually, according to C. H. Peters, M.D., of Bismarck, those figures are swollen, since North Dakota found it could provide nursing-home services under MAA to welfare clients of several previously existent categories, and consequently transferred many such people to the new program. Of the 1,461 certified as eligible for MAA, 945 (64.7 per cent) were transferred from Old Age Assistance, Aid to the Blind, or Aid Program for the Totally Disabled.

Dr. Peters says that apparently the elderly people of North Dakota are disinclined to qualify for MAA until they actually need help. They make inquiries in considerable numbers, while they are well, but they don't actually apply until they are faced with costs of illness or a necessity for surgery that neither they nor their relatives can finance. Even then, he says, considerable numbers of them are referred to the state welfare department by physicians or hospitals, rather than apply on their own initiative. Of the total receiving MAA in North Dakota during the year that ended June 30, 1962, as many as 21 per cent had no children, and of those who had sons or daughters, about half were receiving neither cash nor services from them.

Perhaps it is worth noting that of the $1,425,000 that North Dakota spent on MAA from July 1, 1961, to June 30, 1962, hospital care took 23.8 per cent; 62.9 per cent went for nursing-home care; physicians' services took 5.9 per cent; and another 5.9 per cent went for drugs. Since North Dakota has no medical school, it seems likely that hospitalization and physicians' services for MAA recipients involve proportionally greater outlays there than they would in Iowa.

CONCLUSION AND RECOMMENDATION

It seems that the figures for an Iowa MAA program that the State Board of Social Welfare suggested at the budget hearings last month cannot have been too small. North Dakota, with eligibility restrictions resembling Iowa's, has received a comparatively small number of applications for such aid during the first full year of its program, and has been able to provide rather handsomely for the people whom it has certified. Twenty-one per cent of the recipients have been elderly people with no sons or daughters, and half of the rest haven't been getting any money or services from their progeny. Moreover, finding no horde of new people to help, North Dakota has been able to transfer nearly a thousand people from other assistance categories to MAA, so as to provide them nursing care when they need such attention. In brief, North Dakota has found a small group of people with previously unmet health care needs—a group that must have a counterpart in Iowa—and is caring for them and improving its help to clients in the others of its welfare categories, all at much less expense than it had expected.

It is just possible that Iowa's experience may surpass North Dakota's, for Iowa supports a medical school that has long provided physicians' services and hospitalization to considerable numbers of near-needy people, as well as to the completely impoverished. Thus, hospitalization costs chargeable to MAA in Iowa should be proportionally less than those in North Dakota, if present bookkeeping methods are continued. If the General Assembly preferred, however, some of the cost of hospitalization and care at S.U.I. for the near-needy might be charged to MAA, thus reducing the burden on the poor fund in each of the Iowa counties.

We hope that our legislators will set up a sizeable fund from which to finance a Kerr-Mills program in Iowa, for having chosen to implement it rather than ask Congress for medical aid to the aged under Social Security, they should enable it to do a really good job. There are only slightly fewer than six times as many elderly people in Iowa as in North Dakota, and it is possible that inadequate publicity, a unique attitude on the part of elderly people in that state, an incorrect evaluation of what appear to be only slight differences between the eligibility restrictions imposed by the two states, or differences in the strictness with which they can be enforced, may make Iowa's experience relatively more costly than North Dakota's.

But now that another midwestern state has taken the plunge and has found the water shallower than it had anticipated, Iowa can follow with a certain degree of confidence.

Iowa Association of Medical Assistants

Insurance Forms

A recent issue of MEDICAL ECONOMICS carried an article by Mr. Horace Cotton with the admonitory title "Don't Damn Those Insurance Forms." Mr. Cotton quoted statistics showing the percentage of income in the average practice that is realized from insurance claims. His figures make us stop and think! And, while we groan with each batch of incoming mail that brings us more forms to complete, maybe WE should do something to make our work easier, instead of blaming the patient who was farsighted enough to buy insurance to help take care of his medical expense. Since the medical assistant is the person who usually fills in these claim forms, why shouldn't she do everything she can to assist herself?

We shall assume that you agree that Blue Shield reports are simple to prepare. Where we bog down most frequently is on claims coming under the Workmen's Compensation Law. If your records carry all the necessary information, claims are easy to process. However, if some of the history is absent—if someone neglected to get the patient's age or how he was injured—time is wasted in trying to get this information after the patient has been discharged.

Answers to WHO, WHAT, WHERE, AND WHEN questions recorded at the time the patient is first seen, can simplify later work.

WHO means the patient's full name, age, marital status and home address, and the name and address of his employer. Also there should be a record of WHO solicited the services of your doctor.

WHAT refers to *what* the patient was doing at the time of the injury and *what* part of his body was affected—right fourth finger, left ankle, etc. WHAT also describes the treatment given and the result.

WHERE concerns the place of the accident—garage, building site, home or farm field. WHERE also has to do with the place of treatment—home, office or hospital.

WHEN has to do with the date and hour the accident occurred. Also listed under WHEN should be the dates of partial and total disability. If there has been no loss of time from work, make a note of it. Such a record may save you a call to the timekeeper to check on a patient for whom only one visit was necessary. An additional item of information in this same category could be WHEN he had his last tetanus toxoid injection.

A simple mimeographed or printed form with these questions on it can easily be prepared, and will simplify the process of taking a history.

Unless you keep a copy of every claim filed, or note on the record that a claim has been filed, you may not be able to answer the question often asked of the medical assistant, "Have we filed a claim for this patient?" One easy place to keep such a record is a notebook with columns headed as follows:

Date claim form received
Name of patient
Name and address of Insurance Company
Amount of claim
Date claim filed
Amount of settlement and date received

As you open the morning mail, you can record this information quickly. While you are doing this, your attention may be called to a claim that is ready to be filed—perhaps one that you have been holding for a final report and bill until total disability has been established. We assume that the preliminary report was submitted promptly to the insurance company when the patient was first seen.

Books have been written and more will be written on this subject. Let's close by asking a couple of questions: Isn't yours a happier day when the morning mail brings a handful of checks in settlement of insurance claims? Then, instead of groaning and complaining about the amount of work you have to do to achieve this happiness, why not do something to help yourself? Whatever system you use in processing claims—one morning a week, or "catch as catch can"—use your head to save wasted time and energy. You and your doctor will reap the benefits.

—HELEN G. HUGHES

IMS ANNUAL MEETING
Fort Des Moines Hotel
April 7-10, 1963

STATE DEPARTMENT OF HEALTH

COMMISSIONER

". . . And It Went Off!"

"Gunshot wound in head—shot in face. . . ." "Top of head blown off by shotgun blast." However gruesome and wasteful, these and similar tragedies occurred in Iowa 48 times between January 1, 1960, and May 31, 1962.

Of the 48 people who died as a result of firearms accidents, 43 were males. Less than 30 per cent of the victims were known to have been hunting. Of the remaining 34, almost 24 per cent were not handling firearms, but were innocent victims of the carelessness of others.

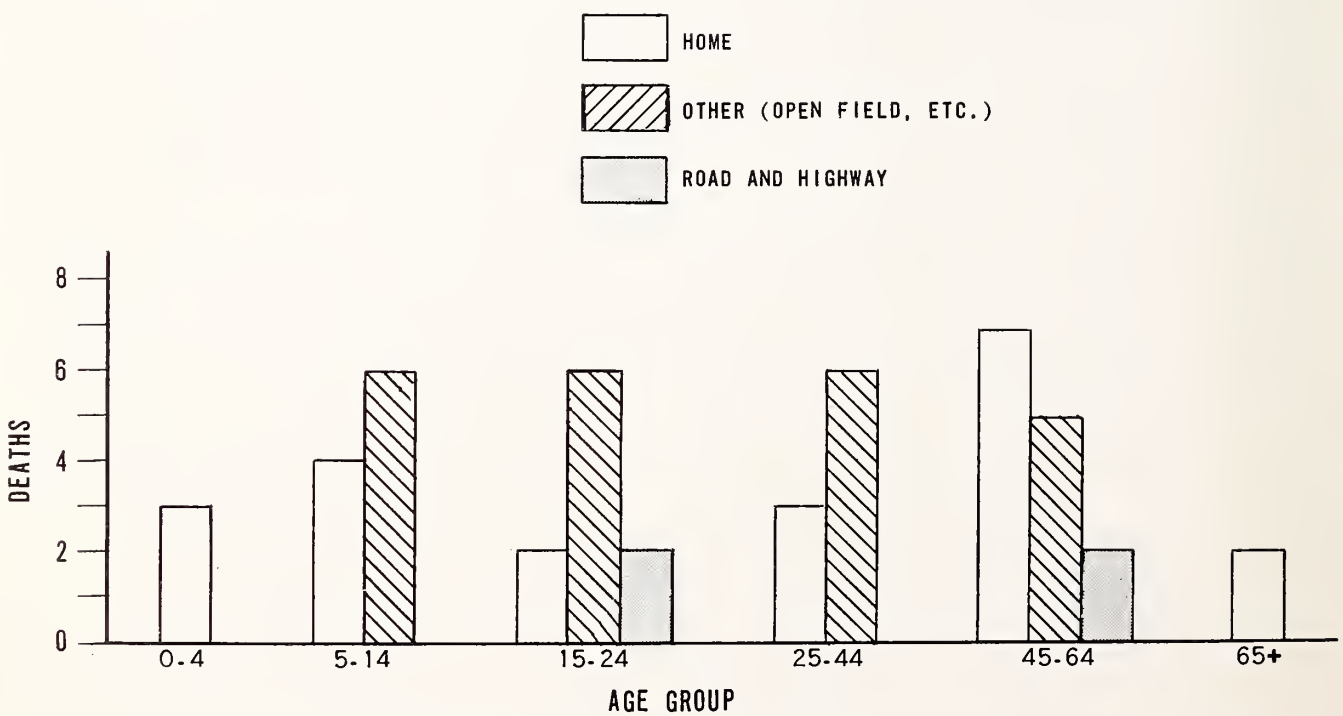
The following chart shows a breakdown of the 48 fatalities mentioned by age group of decedent and place where accident occurred.

Because of the varied quantities and qualities of material available describing the circumstances surrounding particular firearms fatalities, the type of data presented is the result of arbitrary choice and does not reflect the result of any statistical analysis.

With the onset of hunting seasons, persons of all walks of life depart from their customary roles and become gun-handlers. For some it is a transition which has occurred often in the past, for others it is a once-a-year outing, and for a large number it is a first experience. For all, it should be a time of evaluation, common sense judgment and the strictest regard for the welfare of others. Improper handling and care of firearms will lead to tragedy, as has been illustrated. The general non-hunting group is exposed to risk without regard to age, sex or relationship to the person who has improperly assumed the responsibility of careful gun-handling.

Sodium Content of Public Water Supplies in Iowa

The sodium content of water is occasionally of importance to patients on sodium-restricted diets. Because of several inquiries about the sodium content of water in Iowa, we are publishing a table of the sodium content of water supplies in the larger cities in Iowa. They are all relatively low. We are also presenting a list of all towns and cities in the state with public water supplies having sodium contents of over 200 milligrams per liter. These are the most recent determinations on record with the Iowa State Department of Health.



Gunshot Fatalities in Iowa, January 1, 1960 to May 31, 1962

Anyone wishing to have the sodium contents of other water supplies not listed here may obtain them from local water department officials or from the Iowa State Department of Health.

It should also be noted that a zeolite water softener in the home adds a significant amount of sodium to the water.

SODIUM CONTENT OF THE WATER IN THE LARGEST CITIES IN IOWA

Municipality	County	Sodium Mgm/Liter	Date
Ames	Story	33.6	6-15-60
Boone	Boone	13.5	6-15-60
Burlington	Des Moines	5.0+	3-26-62
Cedar Falls	Black Hawk	12.9	6-14-60
Cedar Rapids	Linn	32.8+	3-30-62
Clinton	Clinton	38.8+	6-15-60
Council Bluffs	Pottawattamie	82.0+	1-15-60
Davenport	Scott	5.3+	3-26-62
Des Moines	Polk	29.0+	11-28-61
Dubuque	Dubuque	6.8+	3- 3-60
Fort Dodge	Webster	40.4+	6-14-60
Fort Madison	Lee	4.0+	3-26-62
Iowa City	Johnson	8.5+	11-27-61
Keokuk	Lee	4.6+	3-26-62
Marshalltown	Marshall	7.8+	6-27-60
Mason City	Cerro Gordo	33.8	6-16-60
Muscatine	Muscatine	17.4	6- 8-61
Newton	Jasper	7.9+	9-29-59
Ottumwa	Wapello	38.8+	1-29-62
Oskaloosa	Mahaska	27.6+	3-21-60
Sioux City	Woodbury	38.4	6-16-60
Waterloo	Black Hawk	9.0	6-22-60

+ Plant Effluent

COMMUNITIES IN IOWA WHICH HAVE A SODIUM CONTENT IN THEIR WATER OF OVER 200 MILLIGRAMS PER LITER

Municipality	County	Sodium Mgm/Liter	Date
Alta	Buena Vista	380*	2- 3-60
Ankeny	Polk	272+	1-17-61
Arcadia	Carroll	370*	5-19-58
Armstrong	Emmet	208+	3- 9-59
Auburn	Sac	428+	5-18-58
Bancroft	Kossuth	394+	2-18-59
Blockton	Taylor	362	8-30-60
Bondurant	Polk	328+	5-20-58
Brighton	Washington	396+	8-14-61
Bussey	Marion	524+	1- 7-62
Collins	Story	408+	7-29-59
Corwith	Hancock	266+	6-25-59
Fort Dodge	Webster	216+	6-14-60
Garden Grove	Decatur	952	9-14-60
Glidden	Carroll	240+	7-30-59
Goldfield	Wright	210+	6-15-59
Grinnell	Poweshiek	334	7-26-60
Hedrick	Keokuk	416+	10-30-61
Irwin	Shelby	246+	9-23-59
Keosauqua	Van Buren	330+	4-20-59
Keota	Keokuk	370+	11- 9-61
Keystone	Benton	484+	8-17-59
Kirkman	Crawford	366	8-14-59
Leon	Decatur	800	12- 5-60
Lineville	Wayne	880	4- 4-62
Lowden	Cedar	264	10-20-59
Lockridge	Jefferson	320+	8-15-61
Manson	Calhoun	274	1-27-61
Melbourne	Marshall	600+	12-26-61
Menlo	Guthrie	318	2- 9-62
Morning Sun	Louisa	404+	11-18-59
Moulton	Appanoose	288+	8-29-61
Mt. Pleasant	Henry	212+	9-17-56
Crawfordsville	Washington	214*	6- 5-58
Dakota City	Humboldt	228+	11-17-61
Dallas Center	Dallas	254+	7- 9-59
Danville	Des Moines	408+	5- 5-60
Davis City	Decatur	896	7-21-58
Dayton	Webster	384+	7- 9-59
Dexter	Dallas	350	7-20-59
Donnelson	Lee	532+	10-30-61
Earlham	Madison	504+	12-18-61
Eldon	Wapello	265+	7-25-57
Estherville	Emmet	414+	7-15-60
Fontanelle	Adair	324+	8- 5-59
New London	Henry	234	5-16-61
North English	Iowa	378+	1- 8-62
Orange City	Sioux	222*	5-20-57
Ottosen	Humboldt	300+	12-10-59
Persia	Harrison	444+	12- 6-59
Rockwell City	Calhoun	322+	12-15-60
Rolfe	Pocahontas	250+	3- 3-59
Schleswig	Crawford	320	4- 4-62
Sibley	Osceola	208	1-31-61
Stratford	Hamilton	294	3- 5-58
Stuart	Guthrie	386*	4-25-62
Sully	Jasper	252	3- 3-58
Templeton	Carroll	320	12-31-59
Terril	Dickinson	224+	1-15-59
Victor	Iowa	510	9- 2-58
Walnut	Pottawattamie	205	3- 7-60
Washington	Washington	346	2- 1-61
Waukee	Dallas	614+	9- 4-58
Wellman	Washington	388+	11- 7-57
Zearing	Story	226+	9-15-58

+ Plant Effluent
* Part of Water Supply less than 200 mgm/liter

New Recommendations for Newborn Nurseries

The United States Public Health Service has revised its recommendations for the planning of newborn nurseries in general hospitals, reducing the number of bassinets to be placed in one room and the number of babies to be cared for by one nurse.

No more than eight to 10 babies should be placed in one nursery, since those are the most that can be cared for by one nurse, according to the Public Health Service's new report, published in the November 1 issue of HOSPITALS, the journal of the American Hospital Association.

It is based on a soon-to-be-published USPHS manual, "Planning Nurseries for Newborn in the

General Hospital," publication number 930-D5. It was developed as an activity of the Division of Hospital and Medical Facilities of the Public Health Service and the Children's Bureau, with the cooperation of the Committee on Fetus and Newborn of the American Academy of Pediatrics.

USPHS regulations for hospital construction under the Hospital Survey and Construction (Hill-Burton) Act of 1946, have, since the passage of the legislation, allowed a maximum of 12 infants per nurse. Although the regulations have not been changed, hospital planners are urged to follow the recommendations of the new report.

"The extent of spread of infection in a nursery can be reduced as the number of infants in each nursery room is reduced," the report said.

"Because it is one of the areas in the hospital where patients are most vulnerable to infection, the nursery should be planned to provide the best means for the care, safety and welfare of the infants," the report said, adding that the new guide should "be adapted to individual requirements when new nursery departments are planned or when old ones are remodeled."

The report provides formulas for calculating the number of full-term, premature and observation bassinets a hospital needs according to the population of the area it serves, the number of live births expected annually, and the average length of stay for a full-term or premature infant. The report gives detailed plans for layout and equipment for nurseries in hospitals of various sizes, showing both eight-bassinet and four-bassinet nurseries.

"The four-bassinet nursery lends itself well to the 'cohort' system in which babies born during the same interval (no more than 48 hours) are kept in the same nursery," the report said. The babies arrive and depart together. After the departure of each cohort of babies, the nursery is cleaned and disinfected. In theory, this helps break the chain of possible cross-infection by eliminating the overlapping stay of babies with infection. Two cohorts may be under the care of one nurse.

A minimum of 30 square feet per infant was recommended for each full-term nursery, and bassinets should be at least 2 feet apart. Experience has shown that at least this much space is needed to give proper bedside care to each infant, the report said.

For premature nurseries, the ratio of nurses to babies was set at 1 to 5, since premature infants require more attention than full-term. A premature nursery room should accommodate no more than five infants. Premature infants may be cared for in the full-term nursery if fewer than five will require care at one time and if the total recommended number of 10 is not exceeded, the report said.

An observation nursery should be provided for infants suspected of infection, the report said. When positive diagnosis is made, the infant should be transferred elsewhere in the hospital and placed under isolation. Observation bassinets should be provided at the rate of 10 per cent of the full-term bassinets and should be in a completely separate unit, adjacent to the full-term nursery. A minimum of 40 square feet per bassinet was recommended.

The report also listed provisions for nursing stations, work areas, equipment, air conditioning, temperature and lighting.

Morbidity Report for Month of October, 1962

Diseases	1962 Oct.	1962 Sept.	1961 Oct.	Most Cases Reported From These Counties
Diphtheria	2	11	0	Monona, Woodbury
Scarlet fever	179	116	156	Johnson, Polk
Typhoid fever	0	1	0	
Smallpox	0	0	0	
Measles	251	51	31	Des Moines, Winnebago
Whooping cough	0	8	14	
Brucellosis	4	5	6	Boone, Cass, Dubuque, Hancock
Chickenpox	116	22	61	Dubuque, O'Brien, Polk, Scott
Meningococcic meningitis	0	1	2	
Mumps	84	52	94	Clay, Polk, Scott
Poliomyelitis	2	0	0	Cherokee, Story
Infectious hepatitis	44	54	120	Black Hawk, Clinton, Scott
Rabies in animals	24	21	19	Johnson, Keokuk, Washington, Wayne
Malaria	0	0	0	
Psittacosis	0	0	0	
Q fever	0	0	0	
Tuberculosis	21	39	23	For the state
Syphilis	90	80	82	For the state
Gonorrhea	114	117	109	For the state
Histoplasmosis	7	3	0	Black Hawk, Fayette, Linn, Johnson, Polk, Webster
Food intoxication	0	0	0	
Meningitis (type unspecified)	1	0	13	Henry
Diphtheria carrier	8	3	0	Woodbury
Aseptic meningitis	0	1	0	
Salmonellosis	4	45	1	Clinton, Page, Polk, Warren
Tetanus	0	0	0	
Chancroid	3	0	0	Polk, Washington
Encephalitis (type unspecified)	1	0	0	Linn
H. influenzal meningitis	2	1	1	Linn, Polk
Amebiasis	2	3	0	Black Hawk, Boone
Shigellosis	2	0	1	Des Moines, Polk
Influenza	0	0	14	

Fresh Air for a Dank Corner

The Federal Food and Drug Administration proposes an overhaul of the regulations last written in 1941 for the control of dietary foods. Comments on the proposals have been obtained from all interested parties and are at present under study.

The new regulations will cover vitamin, mineral and other dietary supplements, baby foods, foods for elderly persons, low-sodium foods, low-calorie and artificially sweetened foods, protein supplements, hypoallergenic foods, foods for use in the dietary management of disease, and all foods represented as having special dietary properties.

The intent of the new regulations is to assure the public that these materials are offered for what they actually are, so that they may be purchased and used intelligently.

FOOD SUPPLEMENTS: VITAMINS AND MINERALS

Consumers of vitamin-mineral food supplements today encounter a great variety of tablets, capsules, powders and so forth, containing as high as 50 to 75 ingredients, of which only a few have been shown to be of any value whatever as food supplements. It is virtually impossible for the consumer to make a rational choice based on the relative merits of these "shotgun" formulas.

The proposed regulations permit label claims of special dietary value only for those nutrients that are generally recognized as essential in human nutrition and that, in the amounts provided, are likely to be of value in supplementing the American diet.

If a nutrient is subject to deterioration, the new regulations would require an expiration date to be determined by the manufacturer.

Under the present regulations, foods represented as sources of any of six specified vitamins and four minerals known to be needed in human nutrition must be labeled to show the proportion of the "minimum daily requirement" that is present. The term *minimum daily requirement* frequently has been misunderstood by consumers and has encouraged some manufacturers to add needlessly large amounts of some vitamins and minerals. In the proposed regulations, the term *daily requirement* would be required in place of *minimum daily requirement.*

FOODS FOR USE IN REDUCING OR WEIGHT-CONTROL DIETS

Labels of foods for use in reducing or weight-control diets would be required to state the number of calories in a one-day supply, or in one unit if the foods are in the form of wafers, tablets, capsules, and so forth. The amount in grams of protein, fat and carbohydrates contained in a one-day supply would be stated also.

Foods for reducing would have to bear this declaration prominently on the label: "Useful only when used as a part of a calorie-controlled diet."

To be described as "nonfattening," a food could contain not more than five calories in a serving, or 10 calories in a one-day supply.

To be described as "low-calorie," a food could contain not more than 15 calories in a serving or 30 calories in a one-day supply.

If the label described a food as "lower in calories," it would have to name and state the caloric content of the food with which the product was being compared.

The label of each artificially sweetened food would have to state the calorie saving, as compared with the same food when naturally sweetened. If the comparison shows that the caloric change is insignificant, artificial sweetening should not be used.

PROTEIN SOURCES

Protein consumption in the United States is over 100 Gm. per person daily, whereas the average adult needs only about 60 Gm. for the female and 70 Gm. for the male, daily, of the proteins supplied by the ordinary diet.

The proposed regulations would require foods offered as sources of protein to be labeled in terms of their protein quality and quantity. Specifications that entitle a food to be described as "excellent" or "good" dietary sources of protein have been proposed. Foods which do not meet those specifications could not bear protein claims, since the quality of protein is the important factor.

OTHER REGULATIONS

Only minor changes are proposed in the existing regulations regarding the labeling of low-sodium foods, infant formulas, hypoallergenic foods, and so forth. Medically insignificant amounts of sodium would not have to be shown on the labels of low-sodium food items. Infant foods that simulate human milk would have to supply a specified amount of vitamin B_6 or be labeled to show that additional vitamin B_6 should be provided from other sources. The lack of vitamin B_6 has been shown to cause convulsions in babies. No change has been proposed in labeling hypoallergenic foods.

It should be noted that the National Research Council, in 1958, changed the basis for calorie requirements from activity to age level, as follows:

CALORIE REQUIREMENTS
BY SEX AND AT SELECTED AGES

Age in Years	Male	Female
25	3,200 calories	2,300 calories
45	3,000 calories	2,200 calories
65	2,550 calories	1,800 calories

—Adapted from an editorial in the NEW YORK STATE JOURNAL OF MEDICINE, 62: 2789-2790, (Sept. 1, pt. 1) 1962.

Approved Medical Schools Now Number 87

Two medical schools were added to the list of accredited institutions during the past year, bringing the total to 87, the annual report on medical education of the American Medical Association has demonstrated. The new additions are the University of Kentucky College of Medicine, Lexington, and the California College of Medicine, Los Angeles, formerly the College of Osteopathic Physicians and Surgeons. Approval is granted by the AMA and the Association of American Medical Colleges. There are now no unapproved medical schools in the nation.

The 1961-62 report, prepared by the AMA Council on Medical Education and Hospitals, said "10 or 12" new medical schools are currently being planned. Five universities—Brown, Rutgers, Connecticut, New Mexico and Texas—are proceeding with plans announced last year to establish two or four-year medical schools, the report said, adding: "In almost every state there is some consideration for the possibility of developing new schools within the next decade. Of the many states that have initiated formal or informal considerations of the feasibility of establishing a new school, Arizona, California, Maryland, Massachusetts, Michigan, New York, and Ohio seem most likely to be the sites of new schools in the foreseeable future."

Reporting on the number of applicants to medical schools, the council said a decline was recorded for the fifth straight year. "The decrease amounted, however, to only 16 students, hardly a significant number, and it now seems probable that the formerly progressive decline has been checked," it said. "Based upon estimates of applications for the 1962-63 class and increased enrollments in undergraduate colleges, the expectation is that the number of applicants will be shown to have increased for 1962-63 and will continue to increase for several years."

Although various explanations have been offered for the decline in medical school applicants, the council said "the problem seems to be largely the fact that many new and important careers have opened up for the college graduate, during a period of years in which a relatively small group of men and women reached college age. In retrospect it would appear that this heavy competition for the depression crop of babies should have been anticipated by the profession . . . and accepted with greater equanimity. In spite of the many cries of alarm, there is little evidence that the profession has suffered any real harm through lack of applicants to date."

The total number of students enrolled in medical schools for 1961-62 was 31,078, which represents an increase of 790 students over the previous year, largest increase for any one year since 1951, the report showed. Approval of the California College of Medicine accounted for 355 of the 790 additional students.

New Director for AMA's Scientific Division

Hugh H. Hussey, M.D., dean of Georgetown University School of Medicine, Washington, D. C., and chairman of the AMA Board of Trustees, has been appointed director of the AMA's Division of Scientific Activities.

Dr. Hussey, a native of Washington, D. C., and a graduate of the medical school of which he is dean, will resign from the Board of Trustees later this year and assume his new duties in 1963 at such time as he can be relieved of his responsibilities as dean.

As director of the AMA Division of Scientific Activities, Dr. Hussey will administer the programs of seven departments with more than 130 employees and an annual budget in excess of $2,000,000. These departments include Foods and Nutrition, Drugs, Medical Physics and Rehabilitation, Medical Education and Hospitals, Nursing, Scientific Assembly and Advertising Evaluation.

Dr. Hussey became a full-time associate professor of medicine at Georgetown in 1950 and thereafter limited his practice to consultation in internal medicine. He was appointed professor and chairman of the Department of Preventive Medicine in 1953. Three years later, he was named chairman of the Department of Medicine and was appointed dean of the School of Medicine in 1958.

Dr. Hussey has long been active in medical organizations. He joined the Medical Society of the District of Columbia in 1936 and was elected to the AMA policy-making House of Delegates from the District of Columbia Society in 1950. The House of Delegates elected him to the Board of Trustees in 1956. He served as vice-chairman of the Board in 1960-61 and was elected chairman in June, 1961.

He is the author of 56 scientific publications, many of them dealing with disorders of the peripheral vascular system or, more recently, with medical education. He was medical editor of GP MAGAZINE from 1951 to 1959 and served as associate editor of the MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA for 1940 until 1956.

Dr. Hussey is certified by the American Board of Internal Medicine and has held memberships in the Georgetown Clinical Society; Washington Heart Association, serving as secretary in 1953 and 1954; American Heart Association, serving as chairman of its Council on Clinical Cardiology in 1958-59; American College of Physicians, of which he has been a fellow since 1941; Southern Society for Clinical Research; Public Health Advisory Committee of the District of Columbia; American Clinical and Climatological Association; and Alpha Omega Alpha Honor Society.

Woman's Auxiliary News

Our President Says—

Once again the Christmas season is upon us, with its message of love, but the world is far from peaceful. Strife, suffering and hatred continue to be widespread. Let us keep it as our purpose to help bring about Peace on Earth and Good Will to Men, through great faith, not fear; through courage, not despair; and above all, through guidance!

The AMA-ERF program provides us the means of asserting our faith in the resourcefulness of our fellow men and in the free enterprise system, an important part of which is the private practice of medicine. Let's help forestall governmental control of medical education and research by giving our support to this worthwhile project.

The opening remarks of the national AMA-ERF chairman, Mrs. Earle E. Wilkinson, of Nashville, Tennessee, at the North Central Regional Workshop Conference held in Des Moines during October, explained the purpose of the meeting. The Auxiliary, this year, will help to support two Foundation programs: (1) Funds for medical schools (the former AMEF program). (2) The Loan Guarantee Fund, by means of which bank loans to medical students, internes and residents are partially underwritten. The details of this plan have been summarized in the November issue of the JOURNAL OF THE IOWA MEDICAL SOCIETY.

A general discussion was led by Mrs. Chester Young, the regional chairman, and each state president and state AMA-ERF chairman outlined the fund-raising activities to be carried on in her state.

In my opinion, the Conference was an excellent one, and it certainly inspired us to publicize the program of the Foundation and to raise money to meet its growing needs. Every Auxiliary member should be aware of the AMA-ERF objectives, and every county should promote at least one fund-raising project for its support.

Though one should not expect to profit from his good deeds, it is true that nothing *pays* so well as being an intelligent giver!

Let's put Iowa among the states making a substantial contribution to AMA-ERF!

—SUE RICHMOND (MRS. A. C.), *President*

The gifts of thought are far more precious than the gifts of things. Emerson said: "Rings and jewels are not gifts but apologies for gifts. The only true gift is a portion of thyself."

State Presidents' Meeting

The Nineteenth Annual Conference of state Auxiliary presidents, presidents-elect, national officers and chairmen convened at the Drake Hotel, in Chicago, September 30-October 3, 1962. Those in attendance from Iowa besides your president were Mrs. George McMillan, president-elect; Mrs. R. F. Nielsen, regional chairman of International Health Activities; Mrs. E. A. Larsen, north-central regional chairman of Rural Health; Mrs. Howard Ellis, regional chairman of Legislation; and Mrs. Hazel Lammey, our administrative secretary. All the officers met and discussed the many ways we hope to promote better Auxiliary understanding and Auxiliary participation, beginning at the county level.

The guest speakers included F. J. L. Blasingame, M.D., executive vice-president, American Medical Association; Mr. T. C. Peterson, director, Program Development Division, American Farm Bureau Federation; Robert A. Long, Ph.D., executive secretary of the Cuyahoga County (Cleveland, Ohio) Medical Society; Lt. Colonel Clarence E. Davis, Jr., U. S. Army, of the Industrial College of the Armed Forces, Washington, D. C.; Howard P. Rome, M.D., professor of psychiatry, University of Minnesota; and Mr. Kenneth Haagenson, a former president of Public Relations Society of America.

A new film, "Your Health—Your Choice," featuring Edward R. Annis, M.D., president-elect of the American Medical Association, was shown at the final session of the conference.

Future Nurses Clubs

The members of the Webster City Future Nurses Club entertained their mothers at their Mothers' Night meeting on Monday evening, October 19. The special program was a part of their regular meeting at Elm Park School.

Dr. John Gustafson, of Des Moines, presented and discussed a film on heart surgery.

The Hamilton County Medical Society and its Woman's Auxiliary, and the professional staff at the hospital also were invited.

* * *

Two new Future Nurses Clubs have been organized in Webster County recently. If you have a new club in your area, please send the information to the Auxiliary headquarters office in Des Moines.

COUNTY AND DISTRICT MEETINGS

Officers' Itinerary

Your State President, Mrs. A. C. Richmond, and President-Elect, Mrs. G. J. McMillan, had a very busy schedule, but a most gratifying week, in October, when they visited auxiliaries in the western area of the state. Their schedule was as follows:

Monday, October 8

1 p.m. Luncheon, Stub's Ranch Kitchen, Spencer. Hostess—Dickinson County Medical Auxiliary, Mrs. D. S. Farago, president. Introductions—Mrs. D. F. Rodawig, Sr., councilor, District III.

Tuesday, October 9

1 p.m. Luncheon, Burke Hotel, Carroll. Meeting arranged by Mrs. F. C. Bendixen, councilor, District IV. Carroll is not organized as of this date.

Wednesday, October 10

1 p.m. Luncheon, the Normandy, Sioux City. Hostess—Woodbury County Medical Auxiliary, Mrs. C. A. Jacobs, president; Mrs. F. C. Bendixen, councilor, District IV.

Thursday, October 11

1 p.m. Luncheon, Lewis Hotel, Cherokee. Meeting arranged by Mrs. Bendizen, councilor, District IV. Cherokee not organized as of this date.

Friday, October 12

1 p.m. Luncheon, Hotel Chieftain, Council Bluffs. Hostess—Pottawattamie County Medical Auxiliary, Mrs. C. V. Edwards, Jr., president; Mrs. Max Olsen, Minden, councilor, District XI.

Sioux Med Dames (Woodbury)

The first meeting of the fall season for the members of Sioux Med Dames was held at the Normandy, in Sioux City, on Wednesday, October 10. The one o'clock luncheon was well attended and held special significance in that several state officers of the Woman's Auxiliary to the Iowa Medical Society were present: Mrs. A. C. Richmond, Fort Madison, president; Mrs. G. J. McMillan, Fort Madison, president-elect; Mrs. Henry Boe, Sioux City, second vice-president; and Mrs. Hazel T. Lammey, Des Moines, administrative secretary. Mrs. F. C. Bendixen, LeMars, councilor of District IV, was also present.

The members of the Woman's Auxiliary of Monona County, had been invited, and they had a 100 per cent attendance.

The meeting was called to order by the president, Mrs. Carl A. Jacobs. A report of the state meeting was given by Mrs. Henry Boe. Mrs. A. W. Horsley reported on the progress of civil defense in Sioux City. Mrs. W. P. Davey reported on legislation and said that, in behalf of Sioux Med Dames, she had sent a thank you note to Senators Miller and Hickenlooper for their stand on the King-Anderson Bill. Mrs. Rex Morgan announced the names of the members on her committee responsible for the work on the Handicapped Craft Sale planned for November 12, 13 and 14.

Mrs. Paul Osincup encouraged members to help the Cancer Society by placing orders for Christmas cards with the local society.

Following her report on the Iowa Auxiliary Health Educational Loan Fund, Mrs. Henry Boe made the motion, which was carried, to send the $140.00 plus interest in the Nurses Loan Fund to the State Health Educational Loan Fund.

A special guest at the meeting was Mrs. Harold E. Jacobsen of Sioux City, State Volunteer Health Service Award winner. She was presented to the group by Mrs. Edward M. Honke, who also reported on the State Essay Contest winners—two of whom were from Sioux City.

Mrs. F. C. Bendixen spoke to the group, and introduced Mrs. Richmond. The members were inspired by Mrs. Richmond's talk and were pleased to have her present. She was glad to have the opportunity to meet the members of the two organized counties in District IV.

District XI

District XI of the Woman's Auxiliary to the Iowa Medical Society held a luncheon meeting at the Hotel Chieftain, in Council Bluffs, on October 12.

Dr. C. V. Edwards, Iowa Medical Society President-elect conveyed the greetings of the Society and spoke briefly but eloquently on our duties as Auxiliary members. He pledged his interest and his aid, if we need it.

Following luncheon Mrs. Bierman of Council Bluffs read the Auxiliary pledge and Mrs. Max Olsen, District XI councilor, presided at the business meeting. Roll call was answered by 24 members representing 3 counties. Mrs. A. C. Richmond, our state president, reported on state activities and reminded us it is our duty to our husbands and to the Medical Society to help present a united front, and to be proud of our organization Health—Your Choice." Mrs. Hazel Lammey, our state president-elect, then spoke briefly on organization and told of a recommended film, "Your Health, Your Choice." Mrs. Hazel Lammey, our state administrative secretary, told us how we are all working together for better community health and of some of the things our State Medical Society is particularly interested in having us do.

Mrs. Ralph Moe, state safety chairman, passed out safety leaflets and offered her assistance in securing speakers, films or written material regarding safety for our local activities.

Fifth Annual Convention of WA/SAMA

On Wednesday, May 9, 1962, I flew from Cedar Rapids to Baltimore to attend the Fifth Annual Convention of the Woman's Auxiliary to the Student American Medical Association. I enjoyed the company of Dr. Norman B. Nelson, the Dean of the Medical School at the State University of Iowa, throughout the flight. Limousines provided transportation from Baltimore to Washington, D. C., and I arrived about 6 p.m. to register for the convention. SAMA was holding its convention at the same hotel in conjunction with ours, and the medical students entertained the wives that evening with a "Hospitality House Party."

I had three roommates during my stay. They were from South Carolina, Tennessee and California. We had many long gab sessions about each of our local chapters, and exchanged some valuable ideas. The girl from South Carolina had been sent to the convention with one purpose: to find out whether WA/SAMA was an organization that the students' wives there should bother joining. She left the convention thoroughly convinced that they would greatly benefit from such an organization.

Thursday morning, May 10, was set aside for registration and a tour of the White House. We enjoyed a special tour, more extensive than the regular tour normally provided. Some girls had seen the White House before it was redecorated, and found it not so "cold" and beautifully redone. I enjoyed it especially after having seen Mrs. Kennedy's tour on television.

The highlight of the convention, as far as I was concerned, was the SAMA Annual Awards Banquet, at which Congressman Walter Judd, M.D., was the speaker. He spoke on Medicare, which was at its height of interest at that particular time. I wished everyone in the United States could have heard his reasoning, for if so, there would be no doubt in anyone's mind that Medicare would ruin medicine in the United States. I enjoyed him very much.

Friday morning two clinics were planned for us. Mr. Paul Donelan spoke to us about "Playing with Politics" and his talk was followed by a panel of delegates conducting a "Regional Idea Exchange." Both were very beneficial to us as part of our "Education for Our Careers."

The speaker at the luncheon that noon was Mr. Harold Cummings, president of Minnesota Mutual Life Insurance Company. They hosted that particular luncheon. Friday afternoon, Mrs. Robert Peters, president of national WA/SAMA called the House of Delegates to order. We revised the By-Laws that afternoon. The new office of president-elect was created so that the girl holding that office might have some idea and concept of how to go about doing the vast amount of work that the president of national WA/SAMA must do. Also we increased the national dues from 50 cents to $1.00, so that we could take care of our debt and have an escalating fund as our organization grows. The regions were also changed to be more geographically practical.

Saturday morning we met for breakfast by regions so that we might become better acquainted. Clinics were held again with topics such as: "Plagues of the Doctor's Wife," "The Uneducated Answer," "Medicine and the Church," "The Organization Woman," "Public Criticism," "New Girl in Town." I don't want to go into detail, but all were very interesting.

Luncheon was provided by Eli Lilly and Company and the guest speaker was Austin Smith, M.D., president of the Pharmaceutical Manufacturers' Association.

The Saturday afternoon House of Delegates meeting was lots of fun—nomination and election of officers. Mrs. Robert (Barb) Smith, who was also a delegate from Iowa, had attended the convention the year before and knew some of the "ropes." I got more out of the convention by having her there. As soon as the elections were completed, the convention was brought to a close.

The Woman's Auxiliary to the American Medical Association hosted an "Anniversary Party" that evening from 7:00 to 8:00, which was well attended and very nice. Then Abbott Pharmaceutical Company hosted a party for everyone, with entertainment, favors and all.

Sunday we all had to come back to reality—

homes, dishes, children, husbands and budgets. It was wonderful to have had the opportunity to learn the basic workings of WA/SAMA and its purposes. Now, to project all my enthusiasm to each of our girls in our chapter!

—MARILYN SKAUGSTAD, *President*
Iowa City Chapter, WA/SAMA

A Code for Junior High School Students

Adults, generally, regret the fact that children nowadays are catapulted into adulthood. In a televised panel discussion of the topic on November 16, Des Moines district court judge Don Tidrick proposed a resumption of the custom of keeping boys in knickers through the tenth grade. Though he didn't suggest it, perhaps he would like to see girls required to wear their hair in braids for a comparable length of time. Judge Tidrick's proposal, and the supplement just mentioned, may be impossible of realization, but his objective can be achieved by other means.

The progressive relaxation of rules governing children's behavior has resulted, for the most part, from the youngsters' success in "playing off" their respective sets of parents against one another. They have found it highly effective to protest, "You're old fashioned! Mary's mother and father let her stay out until midnight."

Obviously, the parents in each community should get together to exchange ideas and to agree upon a code for teenagers. Following are some of the regulations on which the faculty members and the parents of children enrolled at the Terman Junior High School, in Palo Alto, California, agreed:

- Except when a school night precedes a holiday, the evenings of Monday through Thursday are reserved for study. Church, Boy Scout and other related activities which do not conflict with the students' homework schedules are permissible exceptions.

- The use of the telephone and of the television should be limited so that they never interfere with the accomplishment of the student's best efforts.

- For parties, many other activities besides dancing should be considered. Students, parents and teachers should be included in the planning.

- Invitations to home parties should be written out, and not given orally. Parents of the host or hostess are asked to see that other parents know the details.

- Chaperones are to be present at all home and school activities.

- Evening activities for seventh graders should end at 10:00; for eighth graders, at 10:30; and for ninth graders, at 11:00.

- Three hours should be the maximum amount of time planned for any activity. The host or hostess should state specifically the time the activity is to end, as well as the time it is to start.

- All arrangements for transportation must be made ahead of time, and should be clearly understood by all parents and youngsters involved.

- Parents should plan to pick their children up at the time appointed for the activity to end. At the termination of a dance or other party, children should be taken directly home. They should *not* be taken to another place of amusement or for additional refreshments.

- For seventh graders, dating is not acceptable; group activities should be encouraged.

- For eighth graders, dating is not acceptable; group activities should be encouraged.

- For ninth graders, dating is discouraged; group activities should be encouraged. Parents may want to take turns bringing several couples to school or home activities, perhaps providing a preliminary dessert get-together in an effort to create a group feeling, rather than a couple feeling.

- As regards schoolday clothing and grooming, make-up is not acceptable for seventh graders, and make-up, nylons and high heels are not acceptable for eighth graders.

- For parties, the hosts or hostesses should clearly state the type of clothing to be worn. Usually, the better the standard of clothing, the better will be the behavior.

In Memoriam

We extend our sympathy to the family of Mrs. L. E. Collins, Sioux City, who died recently. Mrs. Collins was a member of the Sioux Med Dames, the Woman's Auxiliary to the Iowa Medical Society and the Woman's Auxiliary to the American Medical Association.

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